

U.S. DISTRICT COURT  
N.D. OF N.Y.  
FILED  
AUG 10 2017

# UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF NEW YORK

LAWRENCE K. BAERMAN, CLERK  
ALBANY

**FILE ON DEMAND CASE NO: 1:16-CV-1490**

Court Clerk;

**COMES NOW THE GRAND JURY TO DEMAND** that, the clerk performs only a ministerial function that the clerks not perform any tribunal functions, and that the clerk file the attached documents. Any clerk who fails to obey the law shall be prosecuted to the fullest extent of the law. Any attorney or judge advising or intimidating clerks to violate the law will also be prosecuted to the fullest extent of the law. Clerks, attorneys, judges and other officers of the court are expected to know the law. **18 USC §2076** Whoever, being a clerk willfully refuses or neglects to make or forward any report, certificate, statement, or document as required by law, shall be fined under this title or imprisoned not more than one year, or both. A judges demand to remove or conceal is not the law.

The Constitution, and the laws of the United States shall be the **SUPREME LAW OF THE LAND**; and the judges in every state shall be bound thereby. - **United States Constitution Article VI**. Violations are Criminal felony offenses pursuant to **18 USC §241, §242, §1951, §2071** and others. Anyone who is aware of a felony offense being committed by any Public Official, in violation of the Constitution, is mandated to report it under **18 USC §4** - Misprision of felony:

**18 USC §1512** (b) Whoever [Judges] knowingly uses intimidation, threatens, or corruptly persuades another person, or attempts to do so, or engages in misleading conduct toward another person, with intent to - (1) influence, delay, or prevent the testimony of any person in an official proceeding; (2) cause or induce any person to -- (A) withhold testimony, or withhold a record, document, or other object, from an official proceeding; (B) alter, destroy, mutilate, or conceal an object with intent to impair the object's integrity or availability for use in an official proceeding; ... shall be fined under this title or imprisoned not more than 20 years, or both. (3) ... (c) Whoever corruptly-(1) alters, destroys, mutilates, or conceals a record, document, or other object, or attempts to do so, with the intent to impair the object's integrity or availability for use in an official proceeding; or (2) otherwise obstructs, influences, or impedes any official proceeding, or attempts to do so, shall be fined under this title or imprisoned not more than 20 years, or both.

**18 USC § 2071** Concealment, removal, or mutilation generally (a) Whoever willfully and unlawfully conceals, removes, mutilates, obliterates, or destroys, or attempts to do so, or, with intent to do so takes and carries away any record, proceeding, map, book, paper, document, or other thing, filed or deposited with any clerk or officer of any court of the United States, or in any public office, or with any judicial or public officer of the United States, shall be fined under this title or imprisoned not more than three years, or both. (b) Whoever, having the custody of any such record, proceeding, map, book, document, paper, or other thing, willfully and unlawfully conceals, removes, mutilates, obliterates, falsifies, or destroys the same, shall be fined under this title or imprisoned not more than three years, or both; and shall forfeit his office and be disqualified from holding any office under the United States...

**§175.25** A person is guilty of tampering with public records in the first degree when, knowing that (s)he does not have the authority of anyone entitled to grant it, and with intent to defraud, he knowingly removes, mutilates, destroys, conceals, makes a false entry in or falsely alters any record or other written instrument filed with, deposited in, or otherwise constituting a record of a public office or public servant. Tampering with public records in the first degree is a class D felony.

**§175.05** Falsifying public records in the second degree is a class A misdemeanor. A person is guilty of falsifying public records in the second degree when, with intent to defraud, he: Makes or causes a false entry in the public records; or alters, erases, obliterates, deletes, removes or destroys a true entry in the public records; or Omits to make a true entry in the public records in violation of a duty to do so which he knows to be imposed upon him by law or by the nature of his position; or Prevents the making of a true entry or causes the omission thereof in the public records.

**§175.10** Falsifying public records in the first degree. A person is guilty of falsifying public records in the first degree when he commits the crime of falsifying public records in the second degree, and when his intent to defraud includes an intent to commit another crime or to aid or conceal the commission thereof.

**§175.20** Tampering with public records in the second degree. A person is guilty of tampering with public records in the second degree when, knowing that he does not have the authority of anyone entitled to grant it, he knowingly removes, mutilates, destroys, conceals, makes a false entry in or falsely alters any record or other written instrument filed with, deposited in, or otherwise constituting a record of a public office or public servant. Tampering with public records in the second degree is a Class A misdemeanor.

## **How NIST Avoided a Real Analysis of the Physical Evidence of WTC Steel**

(Full length version)<sup>1</sup>

Andrea Dreger

### **(I) NIST's exclusion of most of the recovered structural steel from being adequately examined for their damage and failure modes**

The 236 pieces of structural WTC steel that the National Institute of Standards and Technology (NIST) "catalogued"<sup>2</sup> for its WTC investigation<sup>3</sup> included 55 columns that NIST discuss in paragraph 4.1 "CORE COLUMNS" in NIST NCSTAR 1-3C.<sup>4</sup> NIST analyzed only four of these 55 columns for damage and failure modes. The remaining 51 columns were excluded from being examined for damage and failure modes based on the argument that only columns with a known as-built location<sup>5</sup> in or near the impact and fire areas were of interest for the WTC investigation. See two quotes/screenshots

---

<sup>1</sup> An abridged version of this article can be found on the website of AE911Truth.org.

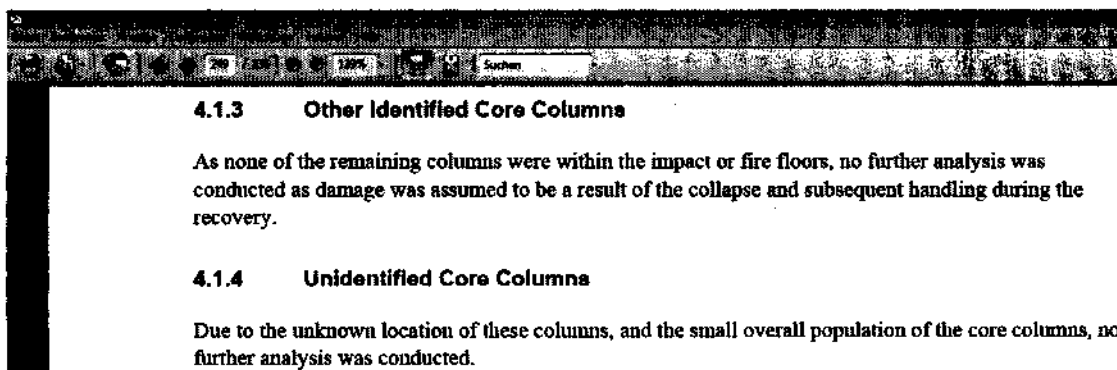
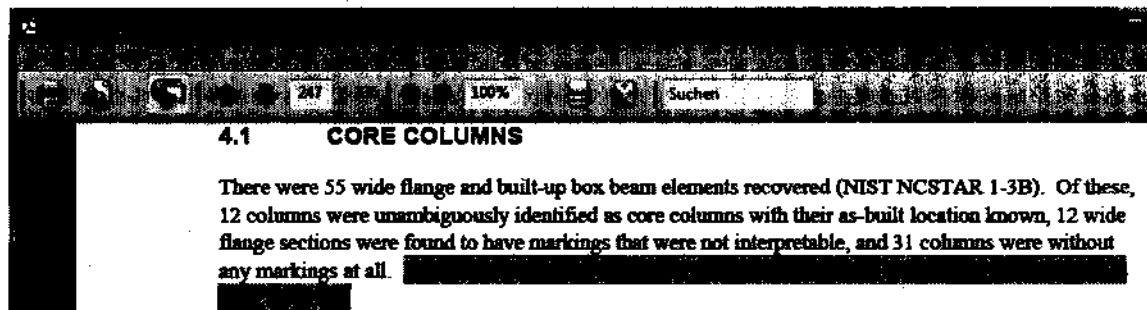
<sup>2</sup> The term "catalogued steel" is used by NIST to refer to the 230 pieces of recovered WTC steel stored at NIST's location in Gaithersburg, Maryland, and to 6 pieces stored in hangar 17 at JFK airport. This "catalogued steel" was the steel that was – at least in theory – to be examined by NIST as part of their WTC investigation. Much more steel was saved than the 236 pieces, but excluded by NIST from being examined or at least "catalogued" (see below).

<sup>3</sup> "Federal Building and Fire Safety Investigation of the World Trade Center Disaster," <http://wtc.nist.gov/NCSTAR1/>, published 2005 and 2008.

<sup>4</sup> NIST makes ambiguous statements if it considers all these members as Twin Tower core columns or not. See NIST NCSTAR 1-3C, "4.1.4 Unidentified Core Columns", and NIST NCSTAR 1-3B, Table 3-4, "Other built-up box columns and wide flange sections from WTC 1 and WTC 2 with ambiguous stampings and/or markings", and NIST NCSTAR 1-3B, 3.2 "IDENTIFICATION OF WTC STRUCTURAL STEEL ELEMENTS".

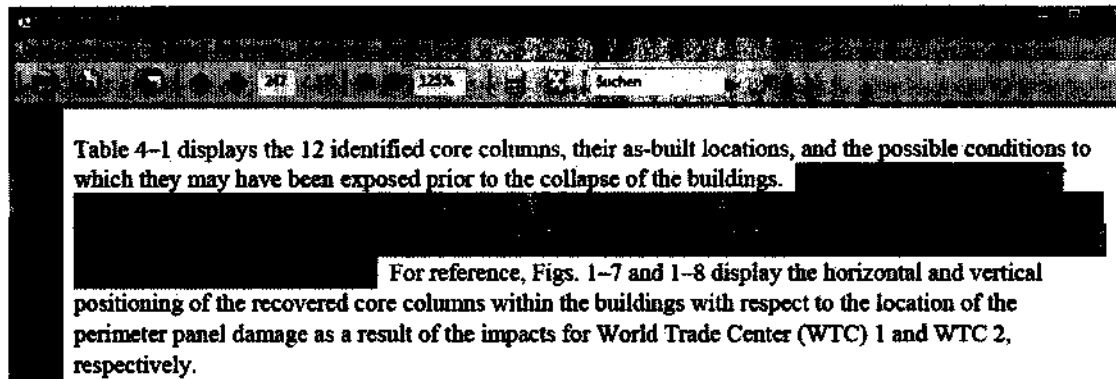
<sup>5</sup> Every column was supposed to have a code (stenciled, stamped or handwritten), dating back from the time of the erection of the Twin Towers, that stated its intended as-built location in the building and other data. In some cases these codes were missing or not complete for various reasons. In such cases the size and other characteristics of a column can support a deduction of its possible as-built location.

from NIST NCSTAR 1-3C, "Chapter 4. PHYSICAL DAMAGE OF CORE ELEMENTS (COLUMNS AND CHANNELS)," blue highlight added.



NIST's argument for exclusion involves two steps: First they state that only the 12 core columns with known as-built locations were of interest. Next, they exclude 8 of these 12 columns because they were located outside the fire and impact areas, arguing implicitly that their damage and failure modes can be only of statistical interest.<sup>6</sup> See quote/screenshot from NIST NCSTAR 1-3C, 4.1 "Core Columns."<sup>7</sup>

<sup>6</sup> Even NIST's argument that statistical data "would be irrelevant" due to the "small overall number" of core columns is questionable. At least, NIST would have had more core columns available if they had not deliberately



A similar argument was applied by NIST to the 90 “catalogued” perimeter wall panels<sup>8</sup> and their columns. NIST describes only those 5 of the 90 panels “in-depth” that were located in the airplane impact zone of WTC 1. See two quotes/screenshots from NIST NCSTAR 1-3C, blue highlights added.

---

excluded almost all of the WTC steel saved by PANYNJ (see below). The implicit argument that failure modes can be only of statistical interest was also used to exclude the unidentified columns from further examination. See above screenshot from NIST “4.1.4 Unidentified Core Columns.”

<sup>7</sup> Table 4-1, mentioned in this screenshot, lists as “possible conditions to which they may have been exposed prior to the collapses” only if the columns have as-built locations in impact and fire floors, but gives no information that was based on the actual failure modes of the columns.

<sup>8</sup> When the WTC was built prefabricated perimeter panels were used. A standard panel consisted of three perimeter columns, stretching over three stories, its three spandrel plates (which made up parts of the web of the columns), the seats attached to these parts, and the end plates of the columns. There were also other kinds of prefabricated panels used, for example, for the mechanical floors. Many of the recovered panels are not complete. The term perimeter panel is used in this article (in line with NIST’s use of the term) also for the pieces when only a part of the panel was recovered.



### 3.1 OVERALL DAMAGE PATTERNS OF EXTERIOR WALL PANEL SECTIONS

Only five of the recovered panels from World Trade Center (WTC) 1 were either directly hit by the airplane or sustained damage as a result of the impact, and no impact-damaged panels were retrieved for WTC 2. Therefore, physical damage incurred for a majority of the recovered exterior panel sections was a result of events that occurred during or after the collapse of the buildings.

However, one general

### 3.2 DAMAGE AND FAILURE MODES OF EXTERIOR WALL COLUMNS

A survey was conducted on the individual exterior wall columns of the recovered panels to identify and inventory the various failure modes associated with impact and collapse of the building.

Other samples were separated and analyzed according to their post impact, pre-collapse environment and known/unknown as-built location.

NIST provides indeed only “limited comments” regarding the damage and failure modes of most panels and their columns except for the named few pieces. The damage and failure modes of most perimeter columns are reported in summary fashion in just a few sentences and in one table with statistical data. This table (see screenshot from NIST NCSTAR 1-3C) is the most detailed information that can be found in NIST’s report regarding the damage and failure modes of those about<sup>9</sup> 128 perimeter columns that were

<sup>9</sup> The number of columns of the identified panels (60 columns from WTC 1 and 38 columns from WTC 2) and of the unidentified panels (55 columns, the table counts 56) is stated in NIST NCSTAR 1-3C (page 99; PDF-page 149). Nine identified columns from three WTC 2 panels were not analyzed due to their storage in hangar 17, JFK airport. The five WTC 1 panels from the impact area comprised 13 columns. NIST does not state which panels or columns are meant with the “other special cases” (see screenshot above). The damage of three perimeter columns from outside the impact area is described in NIST because they were analyzed for their possible exposure to high temperatures. These three columns are considered here also as described “in depth” (though NIST only describes such characteristics that are possibly related to high temperature exposure).

outside of the “focus” of NIST’s analysis.

Table 3-1: Statistical data of damage and failure modes for recovered exterior columns. Unless otherwise noted, values are in percentages of observations.

Panel Description	Panels Considered	Number of Observations	Gross deformation of column			Weld ruptures			Severing of column			
			Crushed	Punctured	Buckling	Localized	Extensive	Spliced column	At stiffener	Away from stiffener	At floor level	Flared out
WTC 1	All panels	80	55	42	75	88	60	22	27	12	3	12
WTC1 panels in impact region	Panels in impact region	13	69	62	85	92	62	38	23	6	8	0
WTC1 panels outside impact region	Panels outside of impact region	47	51	36	72	87	60	17	28	15	2	15
WTC 1 panels exposed to fire	Panels exposed to fire	36	56	53	92	92	61	28	39	6	3	6
WTC 1 panels not exposed to fire	Panels not exposed to fire	24	54	25	50	83	58	13	8	21	4	21
WTC 1 panels exposed to fire	Columns exposed to fire	30	53	57	97	93	63	23	37	7	0	0
WTC 1 panels not exposed to fire	Columns not exposed to fire	30	57	27	53	83	57	20	17	17	7	23
WTC 1 panels separated by floor	Panels above 95th floor	35	49	43	83	89	60	20	26	11	3	9
WTC 1 panels separated by floor	Panels at and below 95th floor	25	64	40	64	88	60	24	28	12	4	16
WTC 2	All panels	29	54	39	82	93	89	46	43	18	0	4
WTC 2 panels separated by floor	Panels above 78th floor	20	60	40	85	100	90	45	55	10	0	5
WTC 2 panels separated by floor	Panels at and below 78th floor	9	38	38	75	75	88	50	13	38	0	0
Unidentified panels	All panels	56	16	21	14	18	18	36	15	29	0	9

Likewise, the damage and failure modes of the spandrel connections and end plate connections are summarized for panels from outside the impact area and for unidentified panels in only a few sentences and in tables with statistical data.<sup>10</sup>

<sup>10</sup> While NIST examined the column splices and spandrel connections of all “catalogued” perimeter panels, NIST reports in detail only for the five panels with as-built locations in the impact areas. See screenshots from NIST NCSTAR 1-3C, blue highlights added.

### 3.3 EXTERIOR WALL SPANDREL CONNECTIONS

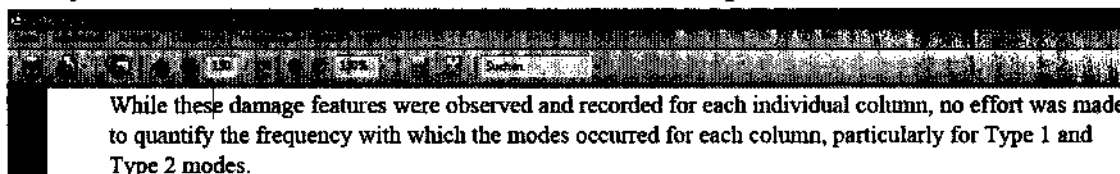
A survey was conducted on the spandrel connectors of the recovered panels to identify and inventory the various failure modes associated with impact and collapse of the building.

The remaining samples were separated and analyzed according to their post impact, pre-collapse environment and known/unknown as-built location.

### 3.4 EXTERIOR WALL COLUMN SPLICES OR ENDPLATE/BUTT PLATE CONNECTORS

A survey was conducted on the end plate connectors of the recovered panels to identify and inventory the various failure modes associated with impact and collapse of the buildings.

NIST excluded over 90% of the catalogued columns that are not perimeter columns from any examination for their damage and failure modes. This is different in the case of the perimeter columns. Due to the collection of the data necessary to provide the table with the “statistical data,” all perimeter columns were examined to some degree for their damage characteristics. But the provided “statistical data” are not an adequate analysis of the damage and failure modes of the single pieces. The following quote by NIST (screenshot from NIST NCSTAR 1-3C)<sup>11</sup> underlines that no adequate damage and failure analysis was conducted for about 90%<sup>12</sup> of the perimeter columns.



The superficiality of the data provided by NIST is illustrated by NIST's use of the term “crushed,” which is used in the provided table to describe a damage characteristic of perimeter columns, for very different damage patterns. To explain the use of this term NIST provides two photographs,<sup>13</sup>

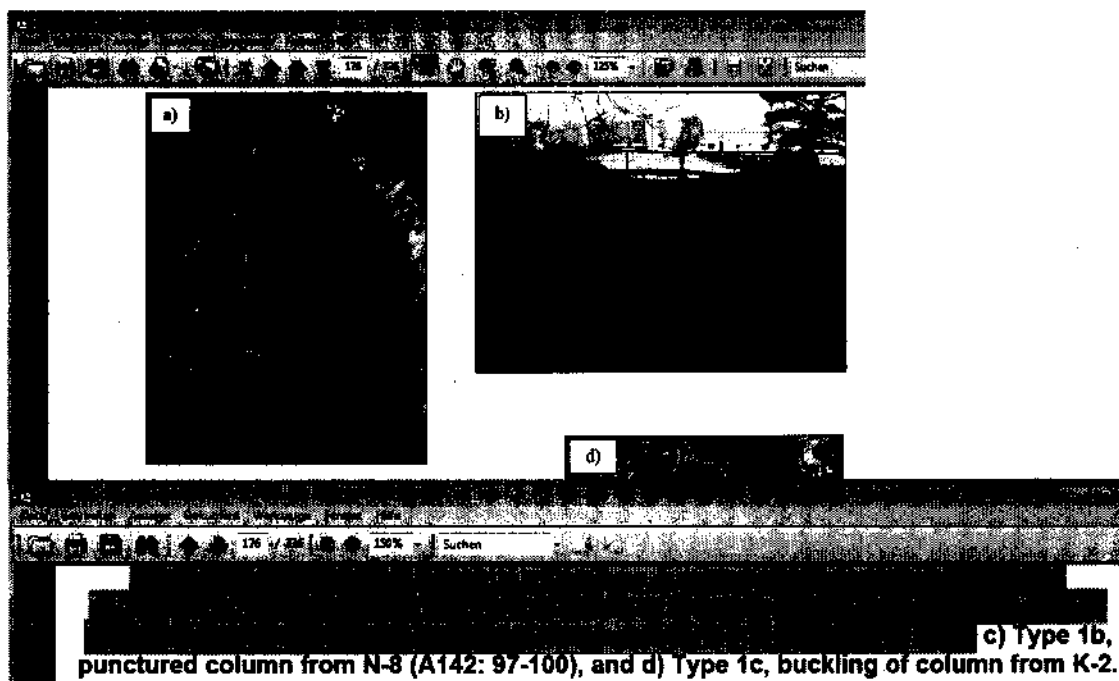
<sup>11</sup> “Type 1” refers to “gross physical distortion of flange/web material” (crushed sections, punctured flanges and/or webs, buckling of flanges and/or webs). “Type 2” refers to “fracture near fillet welds” (localized or extensive fracture associated with welded joints; or columns that were “splayed open”).

<sup>12</sup> See above, footnote # 9. The 9 catalogued columns stored in hangar 17 at JFK airport, which are not included in NIST's table 3-1, raises the overall number of not adequately examined perimeter panels to about 137.

<sup>13</sup> The two photographs with caption (screenshots from NIST NCSTAR 1-3C):

but the “crushed column” from panel K-1 (see photograph below, paragraph “Perimeter Panel K-1”), the failure mode of which is described as “crushed” by NIST too, has a completely different quality of “crushed.”<sup>14</sup>

Any serious investigation into the reasons why the Twin Towers were completely destroyed would attempt to find out why the strong steel frames below the impact and fire areas lost their strength and gave way. But NIST deliberately decided not to do this. NIST excluded – quite systematically and based on the explicit argument that only the few columns with a known as-built location in the impact and fire areas were of interest for the investigation – the columns from the parts that failed and gave way so unexpectedly, i.e., the columns with as-built locations below the impact and fire areas, from



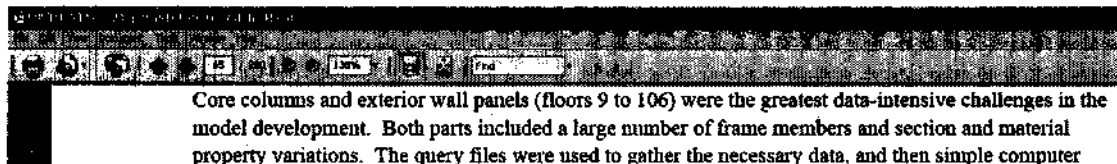
<sup>14</sup> See NIST NCSTAR 1-3C, page 219 (PDF-page 269) for NIST’s description of K-1

being adequately examined for their damage and failure modes.<sup>15</sup> Scientists and engineers in relevant fields should know that those parts of the structure that gave way need to be included in the investigation of a building failure.

There are many indications that NIST's scientists and engineers have been actually well aware that the failure of the load bearing structures of the Twin Towers cannot be investigated by focusing exclusively on the collection of data concerning the impact and fire areas. For example, NIST developed a "structural database" that included the data for the structural members from bottom to top (and not just for the structural members in the impact and fire areas). They developed "global structural models" for both Towers that stretched over their full heights (based on the named structural database, blueprints and other documents). And they analyzed the performance of the undamaged structures (using its global structural models) for three loading cases, and checked the demand/capacity ratio for the structural components.<sup>16</sup> NIST examined (as part of the same "Project 3: "Mechanical and Metallurgical Analysis of Structural Steel," which systematically excluded steel from outside the impact and fire areas from being adequately examined) samples of all steel qualities used throughout the buildings to check if they complied with the demanded quality standards.<sup>17</sup>

<sup>15</sup> One exception is perimeter column K-16, which is examined by NIST in detail despite its as-built location below the impact and fire area. The column was already discussed (as "sample 2") in Appendix C of the FEMA/BPAT study, that called for further examination of its two samples. See J. Barnett, R. R. Biederman, R.D. Sisson, Jr.: "Limited Metallurgical Examination" in FEMA/BPAT, "World Trade Center Building Performance Study," 2002, Appendix C, [http://wtc.nist.gov/media/AppendixC-fema403\\_apc.pdf](http://wtc.nist.gov/media/AppendixC-fema403_apc.pdf), C.6, page 13.

<sup>16</sup> See NIST NCSTAR 1-2 and NIST NCSTAR 1-2A. As one example, see the following quote/screenshot from NIST NCSTAR 1-2A:



<sup>17</sup> NIST NCSTAR 1-3 and NIST NCSTAR 1-3E. As one example, see the following table/screenshot from NIST NCSTAR 1-3E. The last numbers given in the table-column "Column ID" specify the as-built locations (stories) of the columns, from



NIST cannot justify the exclusion of the steel from being adequately examined for damage and failure modes by its published result of the investigation, i.e., the “how the point of collapse initiation was reached” models and the few lines with suggestions why “global collapse ensued.” The named models and suggestions were presented by NIST as results of the investigation, so they should not have influenced decisions at the beginning of the investigation. Examining the evidence and collecting data based on the evidence was a task that NIST needed to perform before any hypotheses were formulated. But NIST excluded identified core columns and perimeter columns that were built-in outside the impact and fire areas, and columns with an unknown as-built location, from being adequately examined for their damage and failure modes at the very beginning of the investigation. Thus, by a process of circular reasoning NIST avoided an adequate analysis of the physical evidence of the steel for data that might have answered the question why the strong steel frames below the impact and fire areas gave way as completely and quickly as they did; by proceeding on the basis of a preconceived premise, NIST compromised the validity of the investigation.

which the examined steel samples were taken. The three columns in the first lines of the table were, for example, once located in stories 15-18, 33-36, and 12-15, i.e. far below the impact and fire areas.

Table 4-8. Chemistry results of core column material (in mass fraction  $\times 100$ ). Shown are the averages with standard deviations given directly below.

NIST ID	Column ID	Element	Component description	Fy (ksi)	Plate thickness (in)	C	Mn	P	S	Si	Al	Cr	Mo	Cu	V	Nb	Ti	Zr	Au	H	N
B-4152-1	883A: 15-18	Type 380 box column	Flange	36	2	0.16	0.98	0.02	0.01	0.24	0.01	0.02	<0.01	0.05	<0.005	<0.005	<0.005	<0.005	0.031	<0.005	0.007
B-4152-2	584A: 33-36	Type 354 box column	Flange	36	2	0.17	0.81	<0.005	0.01	0.20	0.02	0.03	<0.01	0.05	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	0.010
C-99	781B: 12-15	Type 381 box column	Flange	36	3.15	0.15	0.84	0.01	0.01	0.20	0.02	0.03	<0.01	0.05	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	0.006
C-88b	881B: 77-80	Type 378 box column	Flange	42	1.55	0.15	1.11	<0.005	0.01	0.09	0.02	0.01	<0.01	0.02	<0.005	0.030	<0.005	<0.005	<0.005	<0.005	0.005
C-88b	881B: 77-80	Type 378 box column	Flange	42	1.55	0.18	0.86	<0.005	0.01	0.03	0.02	0.01	<0.01	0.02	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	0.004
C-88b	881B: 77-80	Type 378 box column	Web	42	1.55	0.18	0.87	<0.005	0.02	0.03	0.02	0.02	<0.01	0.03	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	0.004
C-88c	801b: 30-83	Type 378 box column	Flange	42	1.55	0.18	0.98	0.03	0.02	0.04	0.02	0.02	0.05	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
C-88c	801b: 30-83	Type 378 box column	Flange	42	1.55	0.19	1.15	0.01	0.02	0.05	0.02	0.03	0.02	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.004
C-89	683A: 92-95	14WF184	Flange	36	1.375	0.23	0.90	0.01	0.01	0.03	0.01	0.02	0.01	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.004
C-65	584A: 83-96	12WF161	Flange	36	1.7	0.23	0.74	0.01	0.02	0.02	0.02	0.02	0.01	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.004
C-155	584A: 83-96	12WF161	Flange	36	1.55	0.23	0.87	<0.005	0.02	0.03	0.02	0.03	<0.01	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
C-71	584A: 77-80	12WF190	Flange	36	1.75	0.23	0.73	0.03	0.02	0.03	0.02	0.02	0.04	0.08	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.003
C-30	1008B: 104-166	14WF287	Flange	36	1.75	0.17	1.06	<0.005	0.01	0.10	0.05	0.04	<0.01	0.24	0.036	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
PLH	605A: 98-101	12WF92	Flange	42	0.875	0.17	1.08	<0.005	0.01	0.03	0.02	0.02	<0.01	0.24	0.065	<0.005	<0.005	<0.005	<0.005	<0.005	0.010

In addition, the exclusion from adequate examination of columns with unknown as-built locations, and of columns from above the impact and fire areas cannot be justified. Any column could hold conclusive evidence; one cannot determine that a piece does not yield any useful clues before it has been adequately examined.<sup>18</sup>

Several statements by NIST, for example, "... only the first group of samples were analyzed" (paragraph "4.1.3 Other Identified Core Columns", see above), "... no further analysis was conducted" (paragraph "4.1.4 Unidentified Core Columns", see above), or "While these damage features were observed and recorded for each individual [perimeter] column, no effort was made to quantify the frequency with which the modes occurred for each column, particularly for Type 1 and Type 2 modes." (paragraph "3.2.1 Types of Failure Modes", see above) show that the exclusion of steel from being adequately examined is not just a reporting problem in the published final report but a problem of NIST's study design. The named steel was indeed not adequately examined, but excluded from the very beginning.

NIST's published report even contains a systematic examination of the damage and failure modes of a certain group of parts, but in line with its premise NIST chose floor truss connectors to demonstrate its ability to conduct a systematic analysis of damage and failure modes, i.e., NIST examined in a much more adequate manner a group of parts that were attached to the main load bearing structural components, but failed to examine the main load bearing components themselves in an adequate manner. The damage and failure modes of any floor truss connector from identified panels are documented with photographs; even for parts from stories below the impact and fire areas. But most of the columns are featured in NIST's report

---

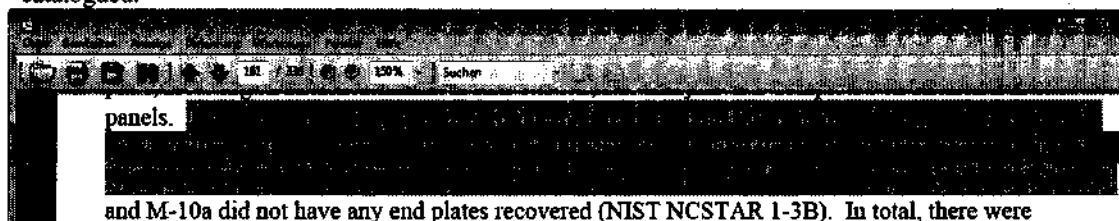
<sup>18</sup> For example, if a box-column would show evidence that incendiaries or explosives severed the bolts that connected it with the column below, it would not matter if the as-built location of this column is unknown; it would constitute nevertheless relevant evidence.

as single pieces only in tables that list their as-built location, size, and sometimes also the steel quality used.

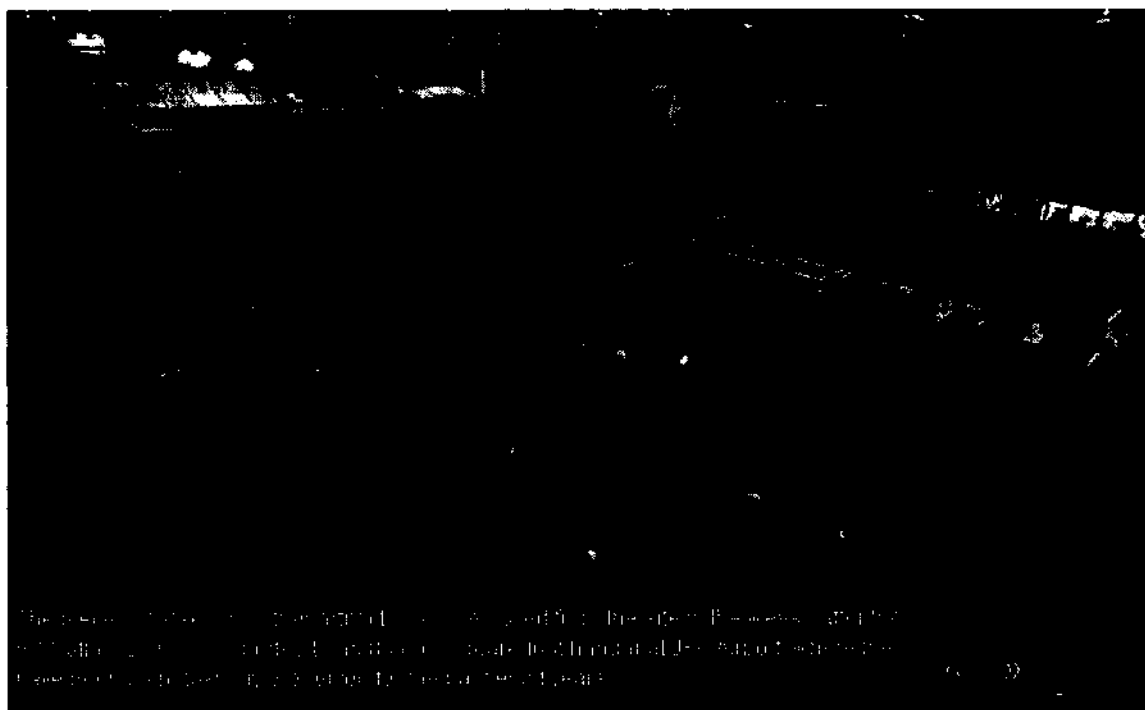
Indeed, NIST excluded not only most of its “catalogued” core columns and perimeter panels from being adequately examined, it excluded the majority of the recovered WTC steel pieces even from being “catalogued” for the investigation. Of the large number of structural steel members collected by the Port Authority of New York and New Jersey (PANYNJ), located in hangar 17 at JFK airport, only 6 whole pieces, and portions of a further 6 pieces were shipped to NIST’s location in Gaithersburg and “catalogued” for NIST’s WTC investigation. NIST does not attempt to justify the exclusion of so many pieces of saved WTC steel from its investigation with any arguments, circular or not, but reports only that “NIST personnel visited the hangar and identified 12 additional pieces that were considered important to its Investigation. Six of these samples were moved whole to the Gaithersburg campus. The remaining pieces had portions removed and sent to NIST ...”<sup>19</sup> The reader is left to conclude that NIST’s personnel considered most of the steel stored in hangar 17 as not being important for the investigation.<sup>20</sup> No

<sup>19</sup> Quoted from NIST NCSTAR 1-3B, page 4 (PDF-page 32). The term “additional” refers to the steel pieces already catalogued by NIST. The term “[t]he remaining pieces” refers to the remaining six pieces, see NIST NCSTAR 1-3, page 28 (PDF-page 76).

<sup>20</sup> The visit to hangar 17 cannot have involved an adequate examination. There is no mention in the NIST report of any such examination, nor of any results. In addition, NIST states repeatedly in NIST NCSTAR 1-3, in respect to three perimeter panels that had portions removed, that they were not fully analyzed, and, in another paragraph, that two were not fully analyzed, and one not at all. See one quote/screenshot from NIST NCSTAR 1-3C, blue highlights added. Note that these “not fully” and “not at all” analyzed panels were panels that NIST at least “catalogued.”



evidentiary justification is given why NIST's personnel "considered" the bulk of the steel as not important. The photographs below show recovered WTC steel, held in hangar 17 at JFK airport. All the steel pieces on these photographs, except the 6 pieces from which NIST had portions removed, were not "catalogued" by NIST<sup>21</sup> and were thus de facto excluded from NIST's WTC investigation.



<sup>21</sup> See the table "A.1 DATABASE OF RECOVERED STEEL" in "APPENDIX A: DATA on RECOVERED WTC STEEL"; NIST NCSTART 1-3B, page 59ff (PDF-page 87). From this table it is clear that NIST lists as "recovered" only pieces stored at NIST's locations and in addition the few pieces from hangar 17, JFK airport, which were not shipped in their entirety to NIST, but only portions of them.



Photographs from <http://www.panynj.gov/wtcprogress/wtc-9-11-steel.html>

The recovered WTC steel constitutes physical evidence. It was NIST's duty to do what they claim to have done, namely to perform an "[e]xtensive failure analysis of the recovered steel,"<sup>22</sup> but NIST did not do so. NIST's decision to exclude most of the steel from being adequately examined, based on circular arguments in the case of the "catalogued" columns and perimeter panels, and without any evidentiary justification in the case of the PANYNJ steel, is one of the reasons that NIST's report does not comply on even a very basic level with what is widely accepted as good practice in science.

## **(II) NIST's exclusion of a common examination method**

When steel deforms at high temperatures it can have distinctive deformations and/or characteristics that are easy to note with the naked eye. The method of unaided visual examination uses such deformations and

---

<sup>22</sup> NIST NCSTAR 1-3, pages xxxviii and 2 (PDF-pages 40 and 50)



characteristics to detect steel that was, or that might have been subjected to high temperatures. The named method is not only useful; it is also established common practice. See, for example, that the “NFPA 921 Guide for Fire and Explosions Investigations”<sup>23</sup> refers to the “deformation” of a material, defined as a “change in its shape,”<sup>24</sup> and to “the bending and buckling of steel beams and columns”<sup>25</sup> when “changes that have occurred in materials due to fire” are discussed.<sup>26</sup> The method of unaided visual examination was also used by one of NIST’s contractors, Wiss, Janney, Elstner Associates, Inc. (WJE), which

<sup>23</sup> Published by the National Fire Protection Association (<http://www.nfpa.org>). The 2008 edition of the NFPA 921 Guide is cited here and in the following quotes. NIST participates in the Technical Committee that is responsible for the statements in the NFPA 921.

<sup>24</sup> NFPA 921: 6.2.2 *Temperature Estimation Using Fire Effects*. *If the investigator knows the approximate temperature required to produce an effect, such as melting, the color change, or deformation a material [sic], an estimate can be made of the temperature to which the material was raised. This knowledge may assist in evaluating the intensity and duration of the heating, the extent of heat flow, or the relative rates of heat release from fuels.*

(The same statement can be found in the 2011 edition, which is the current approved national standard.)

6.2.9 *Thermal Expansion and deformation of Materials*.

*Many materials change shape temporarily or permanently during fires. Nearly all materials expand when heated. [...] Deformation is the change in shape characteristics of an object separate from the other changing characteristics defined elsewhere in this chapter. Deformation can result from a variety of causes ranging from thermal effects to chemical and mechanical effects. [...]*

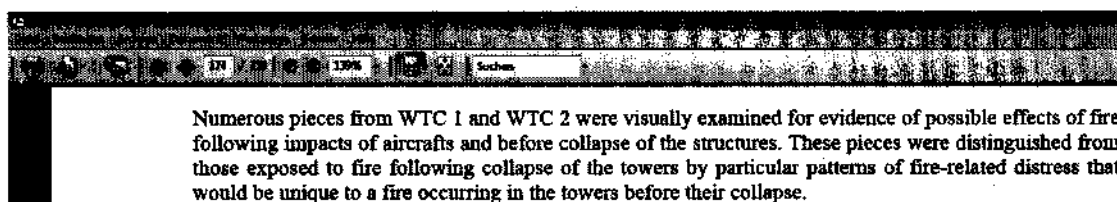
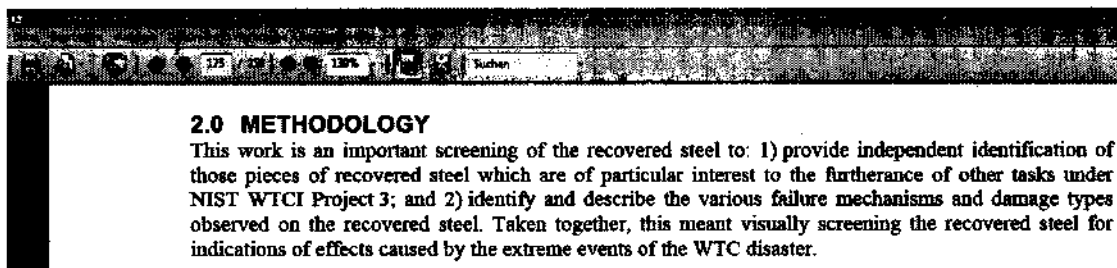
(The same statement can be found in the 2011 edition, which is the current approved national standard.)

<sup>25</sup> NFPA 921: 6.2.9.1 *Bending and buckling (deformation) of steel beams and columns occurs when the steel temperature exceeds approximately 538 °C (1000 °F). At elevated temperatures, steel exhibits a progressive loss of strength. When there is a greater fire exposure, the load required to cause deformation is reduced. Deformation is not the result of melting. A deformed element is not one that has melted during the fire, and therefore the occurrence of such deformation does not indicate that the material was heated above its melting temperature. On the contrary, a deformed as opposed to melted item indicates that the material's temperature did not exceed its melting point. Thermal expansion can also be a factor in the bending of the beam, if the ends of the beam are restraint.*

(The same statement can be found in the 2011 edition, which is the current approved national standard.)

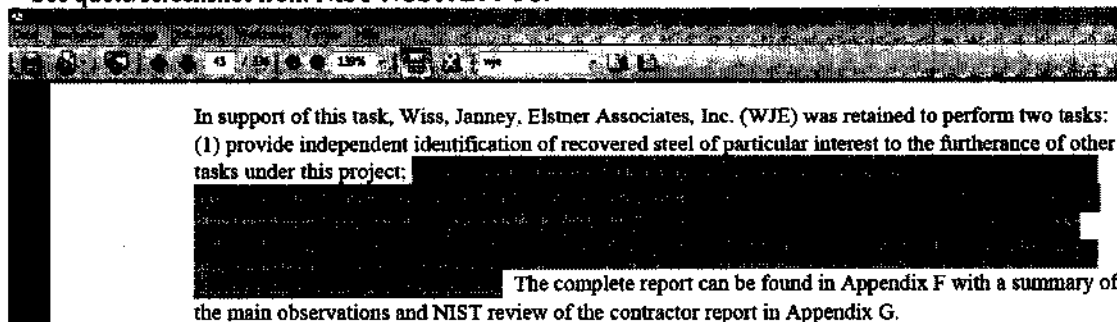
<sup>26</sup> NFPA 921: 6.2 *Fire Effects*. 6.2.1 *To identify fire patterns, the investigator must recognize the changes that have occurred in materials due to fire. These changes are referred to as fire effects, which are the observable or measurable changes in or on a material as the result of a fire.*

was tasked<sup>27</sup> to examine WTC steel; see quotes/screenshots from NIST NCSTAR 1-3C where the WJE report is published as Appendix F:



The statements made by WJE's engineers in their report make it clear that they had no doubt that unaided visual examination is the first thing one does when searching for clues as to whether high temperatures affected the WTC steel. The method was also used by A. Astaneh-Asl, professor at the Department of Civil and Environmental Engineering at the University of California, Berkley, who started to search through WTC steel in September 2001, supported by a grant from the National Science Foundation.<sup>28</sup> The

<sup>27</sup> See quote/screenshot from NIST NCSTAR 1-3C:



<sup>28</sup> See "Before the Committee on Science of the U.S. House of Representatives. March 6, 2002 Hearing on 'Learning from 9/11: Understanding the Collapse of the World Trade Center,'" <http://911research.wtc7.net/mirrors/guardian2/wtc/astaneh-wtc.htm>

statements by Astaneh-Asl, as reported in mass media articles, refer clearly to the method of unaided visual examination, used to detect WTC steel pieces that were affected by high temperatures:<sup>29</sup>

*[...]But to Astaneh, the contrast is clear. One clue is fire damage. Only those members that were subjected to very high temperatures - hot enough to burn away fireproofing and scorch metal - could soften to the buckling point.*

*But the main clue, he says, is shape. "If you drop something from that 1,000-foot elevation, the bend will be random. But if a structure buckles, the buckle shape is exactly like a wave shape. That shape is a mathematical equation. It's a nice curve," he says.*

*"It must have happened somewhere up in the building. It can't have happened when it dropped. This must have buckled up there. When it buckles up there, it's important," he says. About half of the steel members are stamped with an identification number, so Astaneh can pinpoint exactly where in the towers they originated. [...]*

*He also came across severely scorched members from 40 or so floors below the points of impact. He believes that the planes obliterated the elevator walls, allowing burning fuel to pour down into the building, igniting blazes hundreds of feet below the main fire. "When the plane hit," he says, "the walls around the elevator shaft were gone, just thrown away." These lower-floor fires may have contributed to the collapse, and certainly added to the death toll.*

**Further:**<sup>30</sup> *To support his theory,<sup>31</sup> he [Prof. Astaneh-Asl] cites the way the steel has been bent at several connection points that once joined the floors to the vertical columns. If the internal supporting columns had collapsed upon impact, he says, the connection points would show cracks, because the damage would have been done while the steel was cold. Instead, he describes the connections as being smoothly warped: "If you remember the Salvador Dalí paintings with the clocks that are kind of melted -*

<sup>29</sup> D. Kohn: "Culling Through Mangled Steel. Engineer Becomes World Trade Center Detective," CBS News, March 12, 2002, <http://www.cbsnews.com/stories/2002/03/07/terror/main503218.shtml>

In line with the media reports at this time, Astaneh-Asl attributes the very high temperatures to which some steel pieces were exposed to the effects of jet-fuel fires. But jet-fuel fires can reach maximum temperatures of about 1200°C only (this temperature can only be reached when a larger pool of jet-fuel burns in a well-ventilated area). According to NIST's FAQ's ([http://wtc.nist.gov/pubs/factsheets/faqs\\_8\\_2006.htm](http://wtc.nist.gov/pubs/factsheets/faqs_8_2006.htm)) "maximum upper layer air temperatures of about 1,100 °Celsius (2,000 degrees Fahrenheit)" were reached in the jet-fuel and office fires. (Note that these are the temperatures in the air, not in the steel.)

<sup>30</sup> J.R. Young: "Scholars Work to Rebuild the World Trade Center Virtually.

Computer models could help minimize destruction from earthquakes or terrorist attacks," in "THE CHRONICLE OF HIGHER EDUCATION, December 7, 2001 issue, <http://chronicle.com/free/v48/i15/15a02701.htm>

<sup>31</sup> The term "his theory" refers to: "He says the buildings might have survived the plane crashes if the ensuing jet-fuel fires had not weakened the upper floors and started a 'pancaking collapse.'"

- it's kind of like that. That could only happen if you get steel yellow hot or white hot – perhaps around 2,000 degrees.

Further:<sup>32</sup> *One piece Dr. Astaneh-Asl saw was a charred horizontal I-beam from 7 World Trade Center, a 47-story skyscraper that collapsed from fire eight hours after the attacks. The beam, so named because its cross-section looks like a capital I, had clearly endured searing temperatures. Parts of the flat top of the I, once five-eighths of an inch thick, had vaporized. Less clear was whether the beam had been charred after the collapse, as it lay in the pile of burning rubble, or whether it had been engulfed in the fire that led to the building's collapse, which would provide a more telling clue. The answer lay in the beam's twisted shape. As weight pushed down, the center portion had buckled outward. "This tells me it buckled while it was attached to the column," not as it fell, [sic!] Dr. Astaneh-Asl said, adding, "It had burned first, then buckled." [...] By comparing the beam's specifications with architectural drawings, Dr. Astaneh-Asl said he would be able to tell roughly where the beam came from. "I want to know which ones buckled and which ones did not," he said. "That will lead you to the sequence of events. I can tell you exactly what happened there." [...] Dr. Astaneh-Asl said that in some places, the fireproofing melted into a glassy residue.*

WTC steel must have displayed distortions and characteristics typical for exposure to high temperature that were so easy to note by the common method of unaided visual examination that it made sense for Astaneh-Asl to "enlist[...] the help of workers at the recycling center, training them to spot metal beams that might yield clues. Among the features he asks workers to look for are intense "fire burn" and any unusual bending patterns in the metal. Workers take digital photos of the steel that they process, he says, and save pieces that look unusual."<sup>33</sup>

Nevertheless, NIST's scientists and engineers excluded the method of unaided visual examination, which includes the screening of the steel for such easy-to-note distinctive deformations and characteristics, when they examined

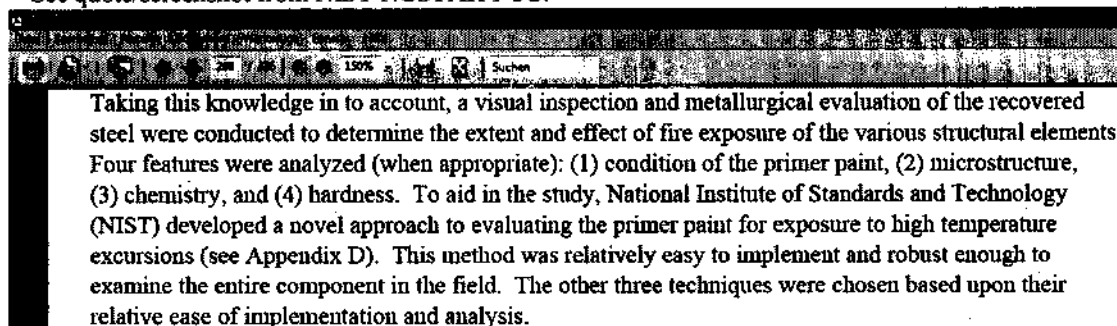
<sup>32</sup> K. Chang: "Scarred Steel Holds Clues, And Remedies," in New York Times, October 2, 2001, <http://www.nytimes.com/2001/10/02/science/scarred-steel-holds-clues-and-remedies.html>

<sup>33</sup> Quoted from J.R. Young: "Scholars Work to Rebuild the World Trade Center Virtually ...," see above. Easily noted deformations on WTC steel typical for exposure to high temperatures were also described in a History Channel documentary ("Relics from the Rubble", see below), and on the website of PBS, featuring their program "America Rebuilds." ([http://www.pbs.org/americarebuilds/artifacts/artifacts\\_09.html](http://www.pbs.org/americarebuilds/artifacts/artifacts_09.html), [http://www.pbs.org/americarebuilds/artifacts/artifacts\\_10.html](http://www.pbs.org/americarebuilds/artifacts/artifacts_10.html). Note the photographs and the narratives below the photographs.) See also the following statement: "The big beams that have obvious fire damage, we're putting aside for now," by "Robert Kelman, senior vice president and general manager of Hugo Neu Schnitzer East of Jersey City, one of the two companies that are recycling the steel." Quoted from K. Chang: "Scarred Steel Holds Clues ...," see above.

WTC core columns and perimeter panels for exposure to high temperatures.<sup>34</sup> NIST used instead a microscope-aided visual examination of the condition of the primary paint of the steel when they systematically screened WTC perimeter panels and core columns as to whether they were possibly affected by high temperatures.<sup>35</sup> The microscope aided, paint-based method (the primary paint is examined if it shows a certain kind of crack pattern) is new; it was specifically developed by NIST for the WTC investigation.<sup>36</sup> It might be of some advantage to use a microscope-aided visual examination of the

<sup>34</sup> NIST excluded the common method of unaided visual examination when screening core columns and perimeter panels as to whether they were subjected to high temperatures. NIST used unaided visual examination with respect to other questions, for example, to check if columns were affected by the airplane impacts, if welds were fractured, etc. When in the following NIST's exclusion of the common method is discussed, terms like "the common method" refer always to the exclusion of this method in respect to the question as to whether steel was exposed to high temperatures.

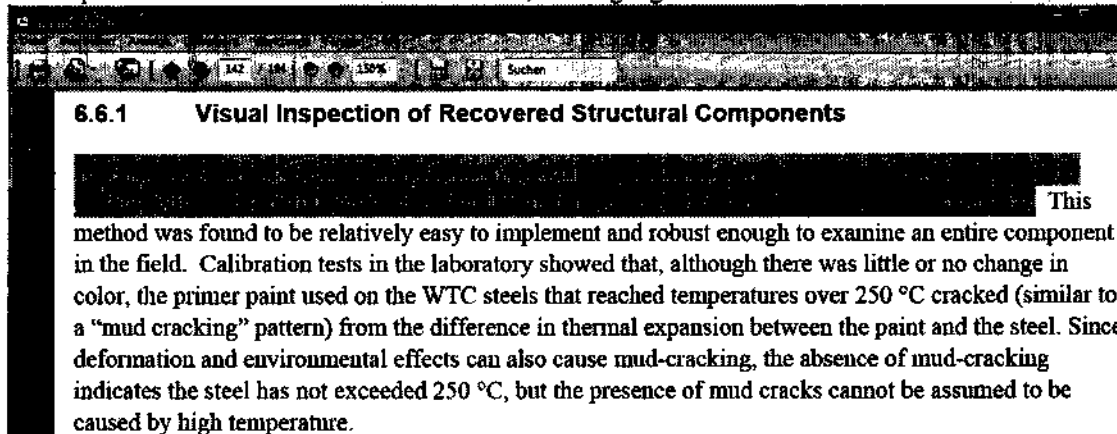
<sup>35</sup> See quote/screenshot from NIST NCSTAR 1-3C.



Taking this knowledge in to account, a visual inspection and metallurgical evaluation of the recovered steel were conducted to determine the extent and effect of fire exposure of the various structural elements. Four features were analyzed (when appropriate): (1) condition of the primer paint, (2) microstructure, (3) chemistry, and (4) hardness. To aid in the study, National Institute of Standards and Technology (NIST) developed a novel approach to evaluating the primer paint for exposure to high temperature excursions (see Appendix D). This method was relatively easy to implement and robust enough to examine the entire component in the field. The other three techniques were chosen based upon their relative ease of implementation and analysis.

Microstructure, chemistry and hardness were only examined in a few pieces where the paint based screening process suggested a possible exposure to temperatures above 250 °C, and in sample (2) of FEMA Appendix C.

<sup>36</sup> See quote/screenshot from NIST NCSTAR 1-3, blue highlight added.



### 6.6.1 Visual Inspection of Recovered Structural Components

This method was found to be relatively easy to implement and robust enough to examine an entire component in the field. Calibration tests in the laboratory showed that, although there was little or no change in color, the primer paint used on the WTC steels that reached temperatures over 250 °C cracked (similar to a "mud cracking" pattern) from the difference in thermal expansion between the paint and the steel. Since deformation and environmental effects can also cause mud-cracking, the absence of mud-cracking indicates the steel has not exceeded 250 °C, but the presence of mud cracks cannot be assumed to be caused by high temperature.

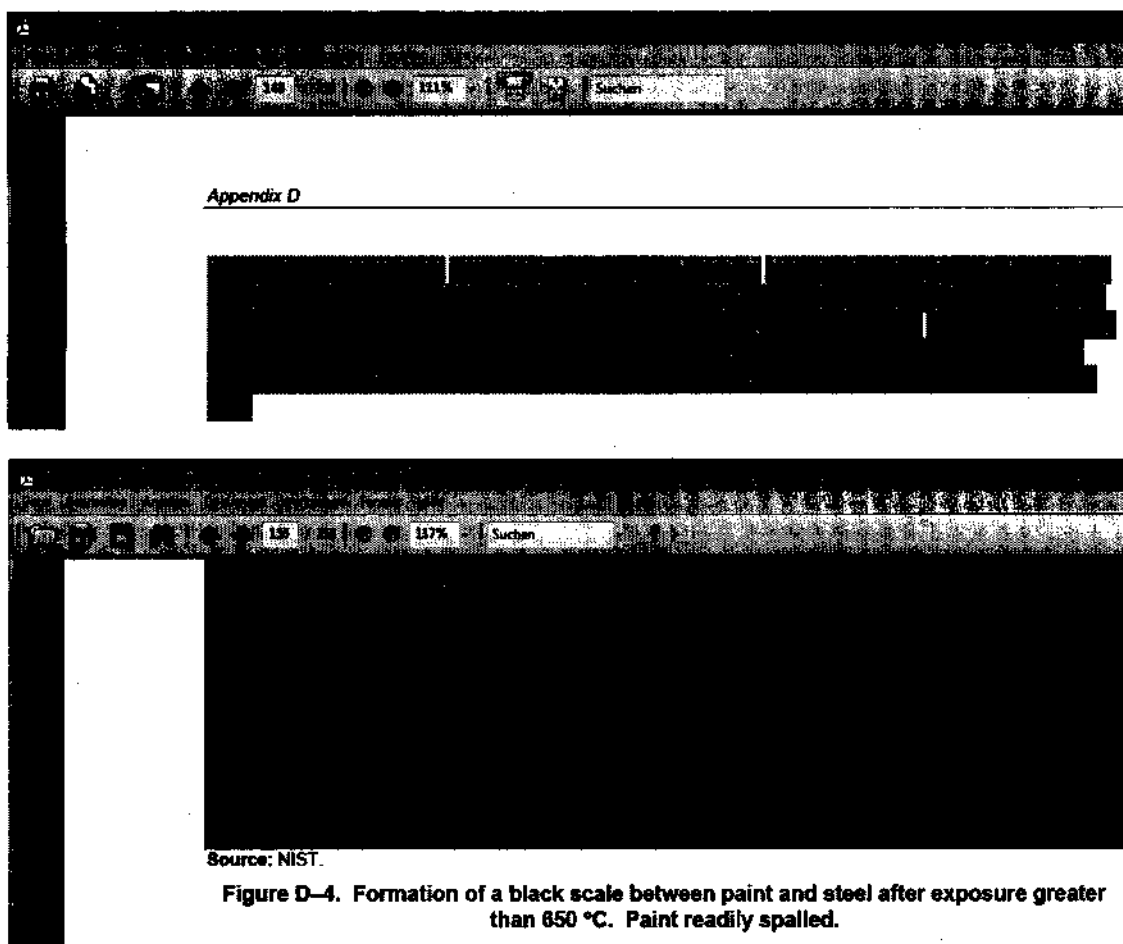


protective paint on the steel in addition to the common unaided visual examination (where not just the paint *on* the steel but also the *actual* steel is examined) when examining WTC core columns and perimeter panels systematically for high temperature excursions. But this is not what NIST did. Instead NIST substituted for the common method of unaided visual examination of the steel the microscope-aided examination of the paint as the systematically used tool when screening the “catalogued” columns as to whether they were subjected to high temperatures. The paint-cracking method is the only method that is used by NIST to screen the named “catalogued” pieces as to whether they were subjected to high temperatures.

NIST’s paint cracking method has two relevant limitations: First, NIST’s method is, per design, most likely useless on all those areas of a steel member that experienced temperatures above approximately 650°C, and almost certainly useless on all those areas of a steel member that experienced temperatures above approximately 800°C. As NIST reports, a scale forms from 650°C upwards between steel and paint,<sup>37</sup> and both are likely to fall off easily. See quote/screenshot from NIST NCSTAR 1-3C, blue highlight added, and photograph (cropped)/screenshot from NIST NCSTAR 1-3C.

---

<sup>37</sup> At least if heated slowly. That NIST does not validate and/or report what happens in the case that the steel is suddenly subjected to high temperatures is an additional problem of NIST’s method. Astaneh-Asl describes in the quote cited from the NYT (see above) that the SFRM (sprayed fire-resistive material, which was on top of the paint) was melted into a glassy residue, indicating that the SFRM experienced very high temperatures while the paint must have remained on the steel. NIST received the steel saved by Astaneh-Asl but any SFMR melted into a glassy residue is not mentioned in NIST’s report. The melting of the SFRM (made up of “slag wool and inorganic binders” with the “chemical family” of “silicates and calcium sulfites”) into a glassy residue indicates very high temperatures (see Chapter 9 in NIST NCSTAR 1-3E for the make-up of the SFRM).



Areas of columns that were heated above 650 or 800°C were therefore highly unlikely to have any paint left. In NIST's experiments the steel shows a blue-black colored surface after the scale fell off at or above 800°C. One might assume that the colored surface would have allowed NIST to detect pieces that experienced high temperatures. But WTC steel that lost its paint already in 2001, and not only in a laboratory furnace a few minutes before the examination, was rusty when NIST conducted its investigation, eliminating the possibility to detect any blue-black colored surfaces that would have indicated exposure to high temperatures.<sup>38</sup> NIST would have been able to

<sup>38</sup> There is also no mention in NIST's report that NIST would have screened the steel for blue-black surfaces.

follow up on columns that had no paint left using other methods (paint loss can be due to various reasons), but NIST did not do this<sup>39</sup> – despite the fact that paint loss is interpreted by the common method of unaided visual examination as a sign of possible exposure to high temperatures, and despite NIST’s explicit knowledge of the fact that the paint will indeed be lost from 650°C upwards.

Given that NIST selected only 4 of the 55 columns that NIST discuss in paragraph 4.1 “CORE COLUMNS” in NIST NCSTAR 1-3C, and 21 of the 90 panels to be screened as to whether they were subjected to high temperatures,<sup>40</sup> an inherent characteristic of the microscope aided method had the effect of being a limitation too – one can notice indications for a possible exposure to high temperatures only on such steel members that were selected to be examined. In contrast, the common method of unaided visual examination more or less “forces” one to notice (i.e., whether one wishes to recognize it or not) that certain steel members most likely experienced high temperatures, and works also well for steel members that have no paint left.

For someone who wants to exclude evidence for exposure to high-temperatures that has the potential to falsify NIST’s premise, the limitations of the paint-cracking method are clearly advantageous. In fact, NIST went to great lengths to substitute its paint based method for the common method of unaided visual examination of the steel and to safeguard the exclusion of the common method (see below).

By deliberately excluding the data the common method of visual examination can provide in respect to high temperature exposure of steel, NIST is again, i.e., independent of the problem of the exclusion of steel, not in

<sup>39</sup> Except for the case of perimeter column K-16, which was examined already in a study published as Appendix C, “Limited Metallurgical Examination” of the FEMA/BPAT “World Trade Center Building Performance Study” that called for the further examination of its two samples.

<sup>40</sup> For NIST’s selection method see NIST NCSTAR 1-3C, page 218 (PDF-page 268).

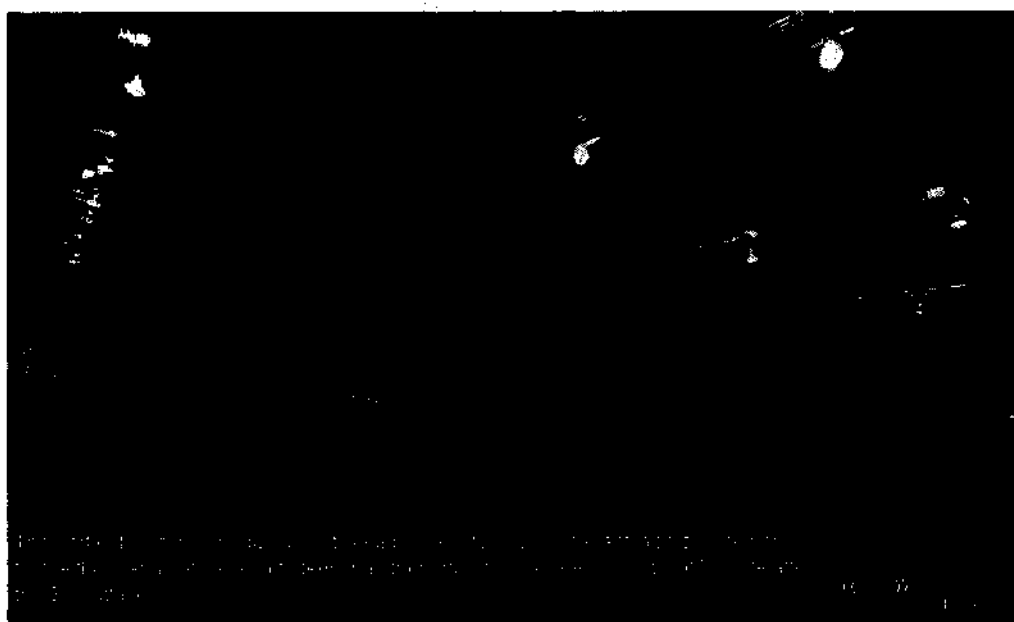
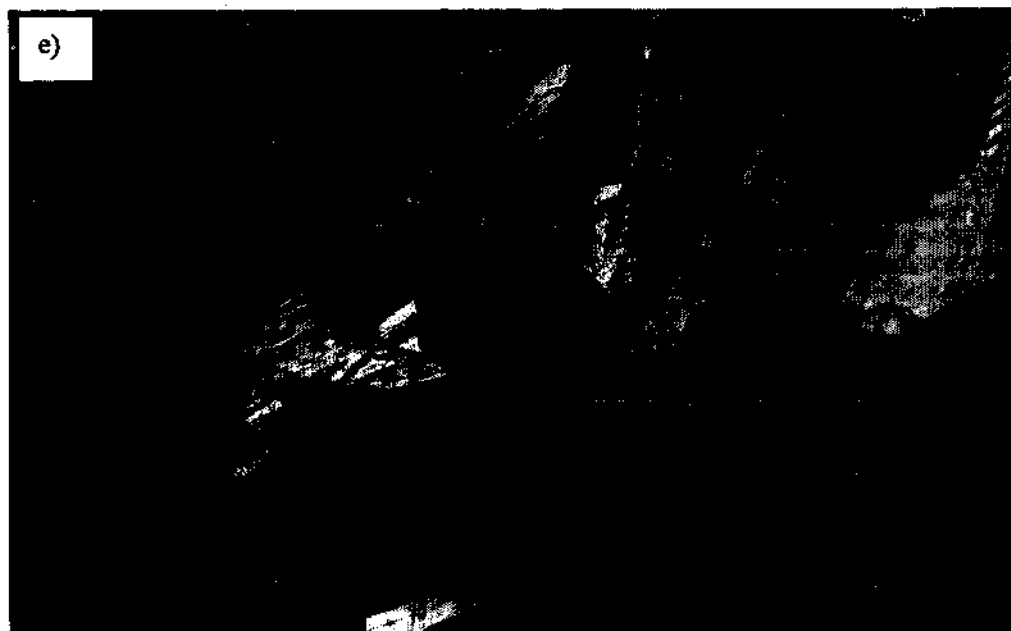
line with basic requirements of the scientific method. Using the paint-cracking method as the only systematically used tool to screen the steel, NIST was able to “miss” recognition of all indications for a possible exposure to high temperatures on those many pieces that were excluded from the microscope aided screening process, and all indications for an exposure to very high temperatures on areas of steel on the examined steel pieces. Based on its exclusive use of a microscope-aided screening method NIST felt free to turn, for example, a blind eye on the remarkable S-shaped deformation of the “catalogued” wide flange section that is by chance visible on one photograph in the NIST report, and on the possible high-temperature exposure of the steel that reminded Astaneh-Asl of Dali’s melted clocks, and on the heat damaged steel from floors below of the impact areas collected by Astaneh-Asl,<sup>41</sup> and on the deformation of the structural steel visible on the photograph 1/7 from hangar 17, JFK airport, and on the horse-shoe bend column documented in “Relics in the Rubble.” See a photograph from the S-shaped wide flange section<sup>42</sup> and from the named steel in hangar 17, JFK airport,<sup>43</sup> and a still frame from “Relics in the Rubble.”<sup>44</sup>

<sup>41</sup> Regarding the high temperature exposure of these parts, see the above statements in the media reports about Astaneh-Asl’s work. That NIST held the steel collected by Astaneh-Asl during its WTC investigation is suggested by NIST’s statement in NIST NCSTAR 1-3B, page 4 (PDF-page 32): “Facing concerns that the identified steel [i.e., steel that was collected by various teams] may not be properly preserved in the recovery yards, NIST arranged for the steel to be shipped to its campus in Gaithersburg, Maryland, starting in March 2002. Professor Astaneh-Asl also granted NIST permission to take custody of the steel that he had personally marked.”

<sup>42</sup> Photograph (cropped) from NIST NCSTAR 1-3B, page 41 (PDF-page 69) Not even the “NIST-name” of this wide-flange section (very likely a core column) can be deduced from NIST’s published report.

<sup>43</sup> Photograph from <http://www.panynj.gov/wtcprogress/wtc-9-11-steel.html>

<sup>44</sup> This piece, most likely a core column, should be part of the PANYNJ steel (see narrative below). “Relics from the Rubble,” History Channel, 2002, broadcast as “THIS WEEK in HISTORY. SPECIAL,” Senior Producer Robert Sharenow, Produced and written by Molly Thompson. Narrative: “[Voice of narrator:] This eight-ton steel I-beam is six inches thick. It was selected to be preserved for future generations for the near perfect horse-shoe like bend formed during the collapse. [voice of person to the right hand side:] I got it hard to believe that it’s actually bent because of the size of it and how it has no cracks in the iron. It bent without a single crack in it. It takes thousands degrees to bend steel like this... [voice of person to the left hand side:] There should be buckling and tearing at the tension side, but there is no buckling at all.”





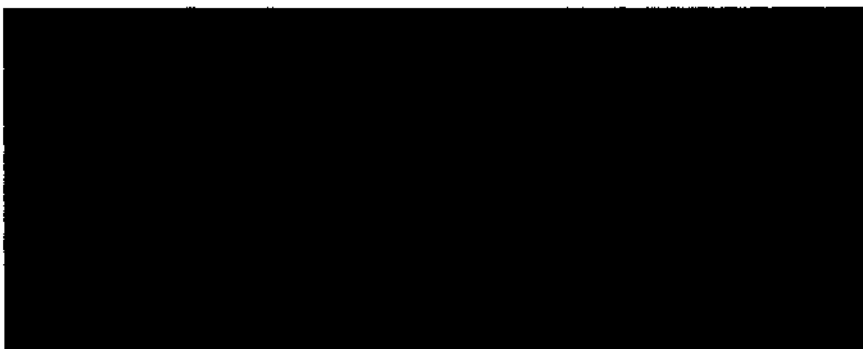
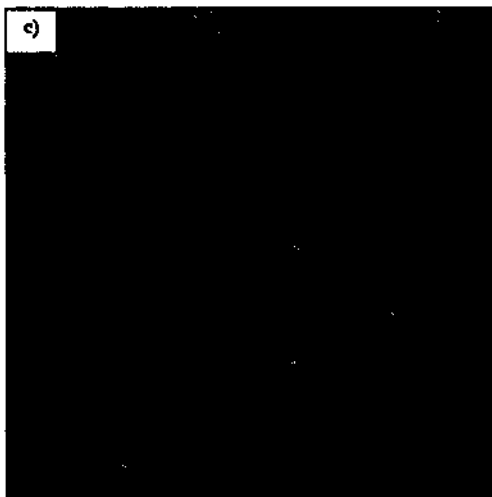


Another example of the effect of NIST's exclusionary tactics and of the poor quality of NIST's investigation is NIST's failure to adequately examine core column C-30.<sup>45</sup> The as-built location of C-30 was in WTC 2, stories 104 to 106<sup>46</sup> at the north-east corner of the core. The column displays obvious signs indicating that it was bent at high temperatures and while it was still restrained in a frame. C-30 shows for most of its length a smooth bend without cracks and without buckling of the flanges, indicating that the smoothly bent part was at high temperatures when it was bent. In addition, the column is bent only along one axis; the flanges are still in one plane,<sup>47</sup> indicating that the column was still well restrained in the frame when it was bent. See photographs from NIST NCSTAR 1-3B (page 44) and NIST NCSTAR 1-3D (page 258) that show C-30.

<sup>45</sup> NIST used C-30 when evaluating the quality of the WTC steel (see NIST NCSTAR 1-3D "Mechanical Properties of Structural Steels"), but did not examine its damage and failure modes.

<sup>46</sup> NIST NCSTAR 1-3B, page 10 (PDF-page 38)

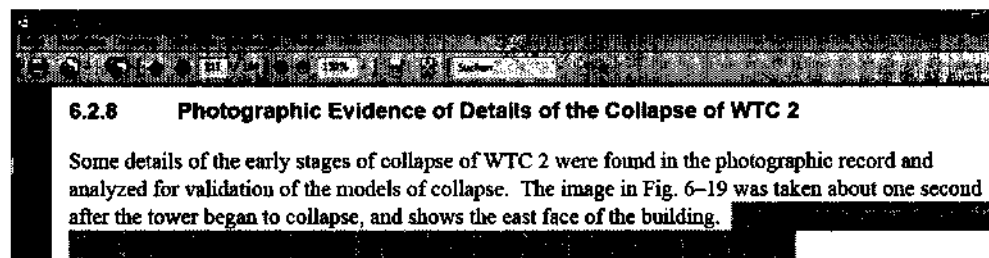
<sup>47</sup> See also NIST NCSTAR 1-3D, page 254 (PDF-page 288)



Since it is indicated that the deformation of column C-30 happened at high temperatures and while the column was still in the building, and since the indications are so obvious to notice when the common method of unaided visual examination is employed, it would have been NIST's duty to follow up on the possibility of a high temperature exposure of column C-30 while it was still in the building. But C-30 was located far above the fire areas; following up on these indications had the potential of falsifying NIST's premise. If further examinations would have supported what is indicated by the deformation and characteristics of C-30, NIST would have documented data that prove that a fireproofed core column was exposed to very high temperatures outside of the fire areas. Both the circular argument described above (which excluded C-30 from any examination regarding its damage and

failure mode) and the exclusive use of the new-developed paint based method when screening the columns “allowed” NIST to act as if they did not notice the obvious indications of possible high temperature exposure of C-30 while restrained in the frame.

Any institution conducting a real investigation into the reasons of the Twin Tower destruction would have found the damage and failure modes of C-30 very interesting at least for the reason that it stretched over those stories where the top part of WTC 2 started to disintegrate, with no apparent reason, early in the final destruction; the edge of the building showed a “sharp kink”<sup>48</sup> in the south-east corner well above of the impact and fire area that degraded “into a gentle curve” in the north-east corner.<sup>49</sup> The kink and the curve are documented in NIST NCSTAR 1-3 and NIST NCSTAR 1-3C<sup>50</sup> – i.e. by “Project 3”, which was responsible for steel examination,<sup>51</sup> and in NIST NCSTAR 1-6. See quotes/photograph/screenshots from NIST NCSTAR 1-3 and NIST NCSTAR 1-6, blue highlights added.



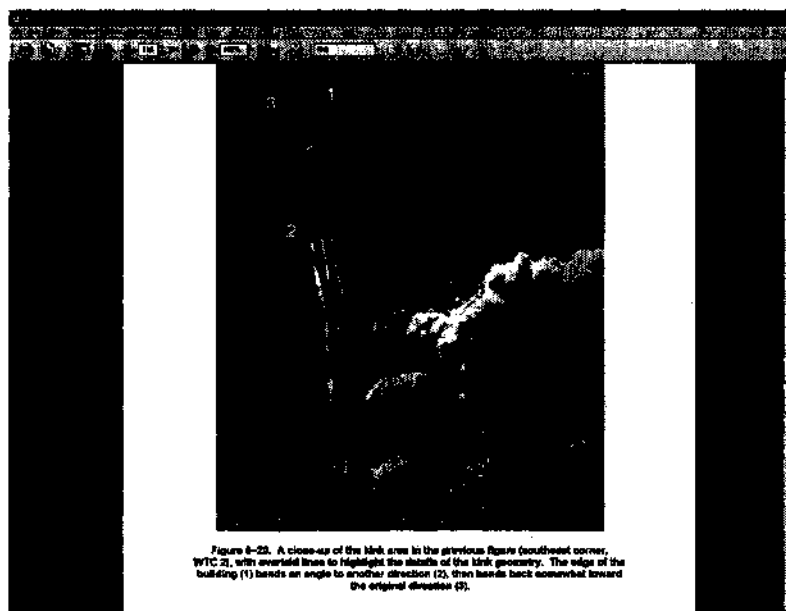
<sup>48</sup> NIST NCSTAR 1-3, page 63 (PDF-page 111)

<sup>49</sup> NIST NCSTAR 1-6, page 169 (PDF-page 251)

<sup>50</sup> NIST NCSTAR 1-3, pages 63 and 67f (PDF-pages 111 and 115f); NIST NCSTAR 1-3C, page 25 (PDF-page 75).

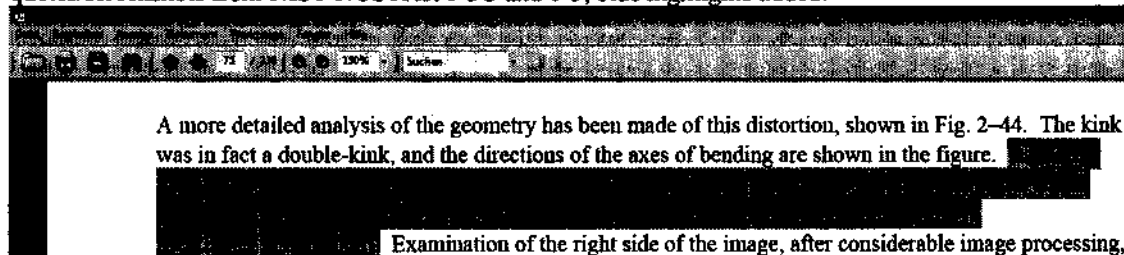
<sup>51</sup> The kink and the curve are not explicable with the change in how gravitation acted on the building due to the leaning of the upper section; the Twin Towers were designed to withstand high wind loads (i.e., large lateral forces).

	9:59:02	~ 106	SE + E		Fig. 6-26	which propagates across the east face where degrades into a gentle curve on the northeast corner; indicates that the kink did not precede the initiation of the global collapse.
--	---------	-------	--------	--	-----------	--



The authors of the final report concerning the steel examination even expected that NIST would publish a discussion of the kink by T. McAllister (co-leader of Project 6 “Structural Fire Response and Collapse Analysis) as part of the final report,<sup>52</sup> but the scientists and engineers responsible for the steel

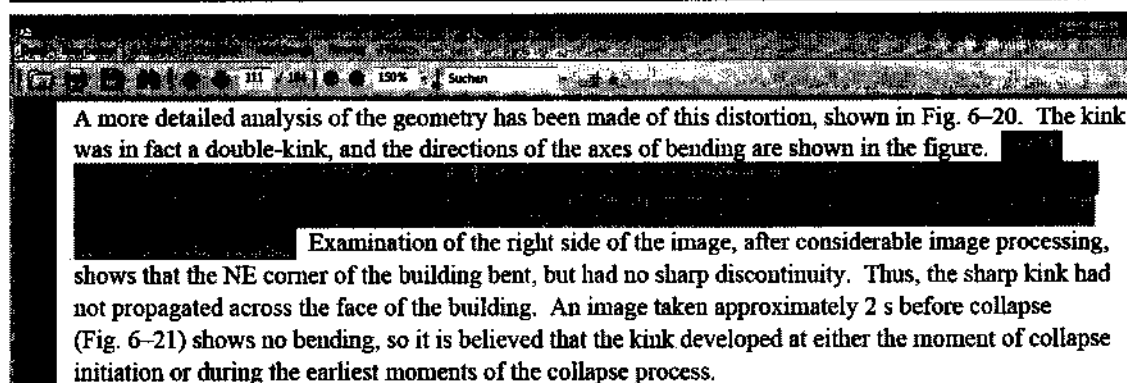
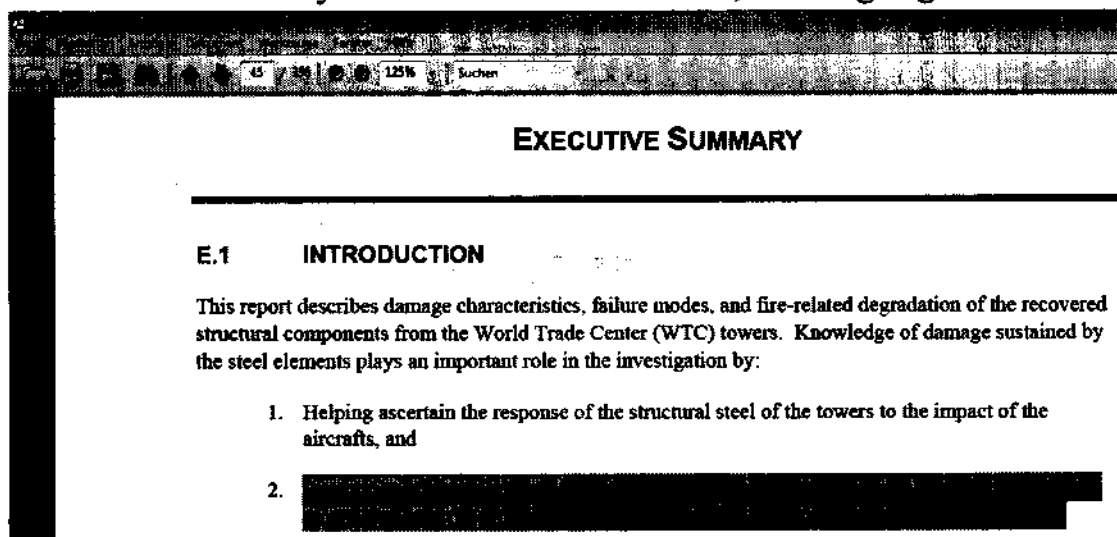
<sup>52</sup> The analysis of the “kink” was supposed to be published in a sub-file NIST NCSTAR 1-6E. See two quotes/screenshots from NIST NCSTAR 1-3C and 1-3, blue highlights added.



examination nevertheless neglected to examine C-30 for its damage and failure modes, and NIST failed to discuss C-30 in relation to the kink.

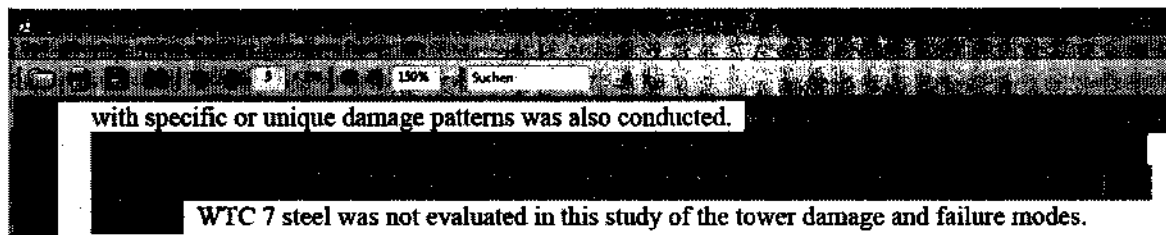
### (III) NIST's lack of quality data for validating their models

Providing data for the validation of the temperature models and for the validation of "modeling efforts" of the "collapse analysis" was among the stated goals of NIST's steel examination. See quote/screenshot from the "Executive Summary" of NIST NCSTAR 1-3C, blue highlights added.

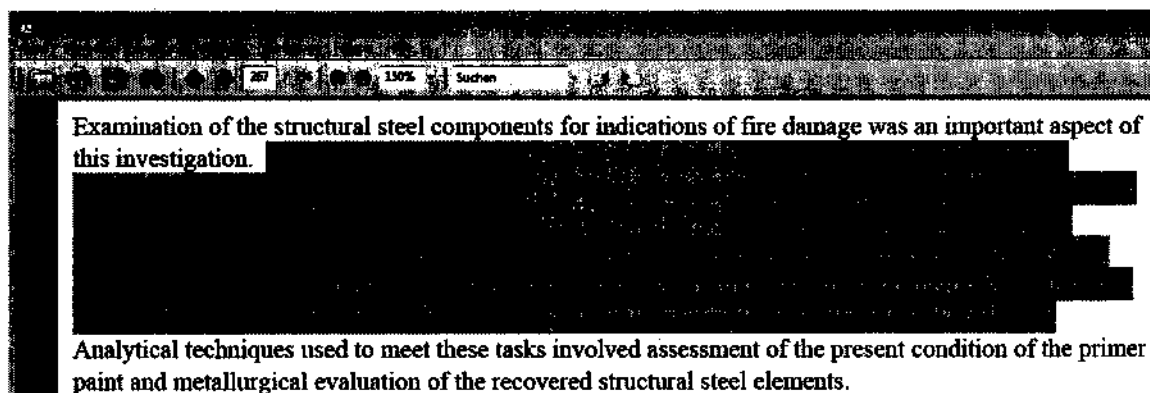


The file NIST NCSTAR 1-6E has not been published.

See also quote/screenshot from the “Abstract” of NIST NCSTAR 1-3C “Damage and Failure Modes of Structural Steel Components” (blue highlight added).

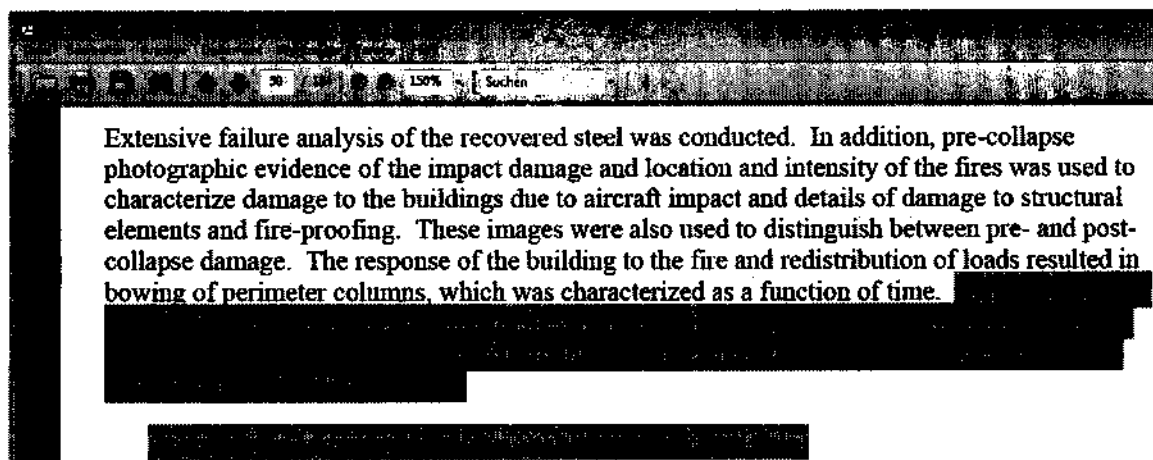
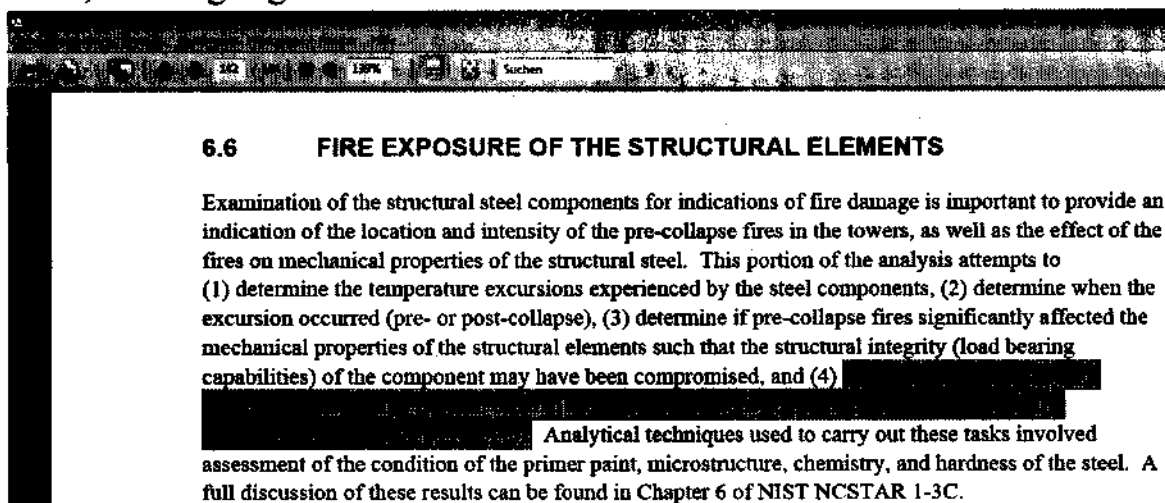


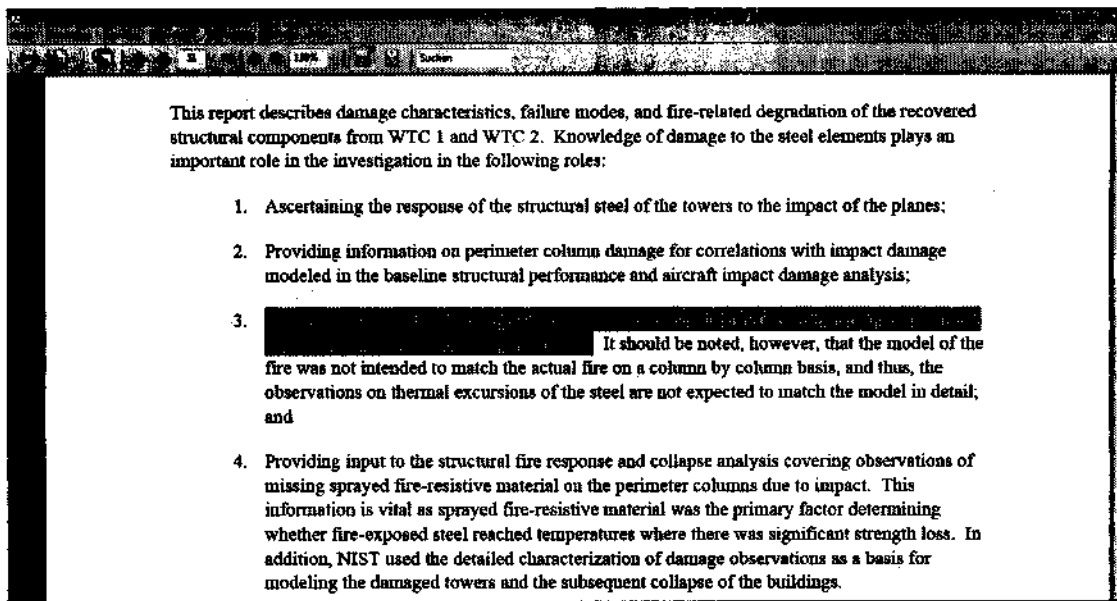
And, quote/screenshot from “Chapter 6. FIRE EXPOSURE OF THE STRUCTURAL ELEMENTS” of NIST NCSTAR 1-3C (blue highlights added).





And, quote/screenshot from NIST NCSTAR 1-3, respectively NIST NCSTAR 1-3C, blue highlights added.





But NIST cannot have data of sufficient quality to validate the temperature models they developed and applied for the fire areas. The paint based method fails above 650°C and NIST did not follow up on parts like core columns C-88a and C-88b and on all three columns of panel S-10 where the paint method yielded “no conclusion” as “results” because no paint was left.<sup>53</sup> This means that NIST's Twin Tower “how the point of collapse initiation was reached” computer models, which are at the core of NIST’s presented results regarding the examination of the reasons for the failure of the structure of the Twin Towers, were run by NIST without any adequate validation of their temperature input-data.<sup>54</sup>

<sup>53</sup> NIST NCSTAR 1-3C, Appendix E, pages 447ff (PDF-pages 161ff in NISTNCSTAR1-3CAppxs.pdf); and NIST NCSTAR 1-3C “Chapter 6 FIRE EXPOSURE OF THE STRUCTURAL ELEMENTS”, pages 217ff (PDF-pages 267ff), especially page 226 (PDF-page 276)

<sup>54</sup> NIST’s temperature models not only lack proper validation due to NIST’s failure to adequately examine and analyze the steel, but they are also not in line with evidence (“glowing carets” that glow bright white, a “metal fire” with a “very bright white flame” “generating a plume of white smoke” and “molten flows” in the vicinity of the “metal fire”) that NIST documented in NIST NCSTAR 1-5A, Chapters 8 and 9.

In addition, the named models were run without adequate validation with respect to the “fracture and failure behavior” of the steel in the models too – at least when one wants models that are not bound by a premise that allowed only the consideration of the “fracture and failure behavior” of those steel pieces that were directly compromised by the airplane impact.

#### **(IV) NIST went to great lengths to exclude the common method**

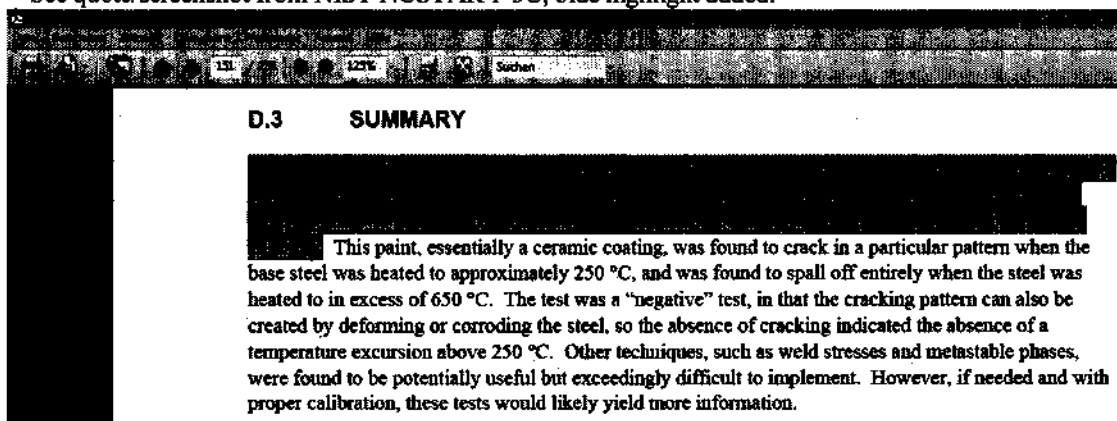
The method of unaided visual examination is indeed common to detect steel possibly exposed to high temperatures,<sup>55</sup> and NIST even used it – but just once on two small truss rods. In NIST’s “Appendix D. FORENSIC THERMOMETRY TECHNIQUE DEVELOPMENT,”<sup>56</sup> methods are listed that might possibly be available to screen steel as to whether it was exposed to high temperatures. Conspicuously, the common unaided visual examination of the steel is not mentioned in this list. One might argue that the common method of unaided visual examination was not mentioned because the headline of the section is “FORENSIC THERMOMETRY TECHNIQUE DEVELOPMENT” and the common method is an existing method that does not need to be developed. But also no other section exists in NIST’s report

<sup>55</sup> See above (reference to the common method in the NFPA 921, use of the common method by Astanek-Asl and WJE). It may also be assumed that unaided visual examination was the first method of choice when “members of the Federal Emergency Management Agency (FEMA), American Society of Civil Engineers Association of New York (ASCE) and of the Building Performance Study (BPS) Team, and of the Structural Engineers Association of New York (SEAoNY)” started in October 2001 “to identify and collect World Trade Center (WTC) structural steel from the various recovery yards.” They searched, inter alia, for “exterior column panels and interior core column from WTC 1 and WTC 2 that were exposed to fire” and for “badly burned pieces from WTC 7;” the Co-Project leader of project 6 of NIST’s WTC investigation, Dr. J.Gross, “was involved in these early efforts.” (The quoted parts are from NIST NCSTAR 1-3B, page 3 (PDF-page 31); similarly in NIST NCSTAR 1-3, page 27 (PDF-page 75). NIST’s scientists and engineers must have had an idea how one searched in 2001 for fire affected and badly burned pieces of WTC steel. Given that they conclude in NIST NCSTAR 1-3C that all such methods like examining microstructural changes in the steel, or measurement of the residual stresses in welds, are not “easy to perform in the field”<sup>(\*)</sup> they will not have assumed that these methods were performed in the recovery yards. (NIST NCSTAR 1-3C, “FORENSIC THERMOMETRY TECHNIQUE DEVELOPMENT”, pages 433ff (PDF-pages 147ff in NISTNCSTAR 1-3CAppxs.pdf)

<sup>56</sup> NIST NCSTAR 1-3C, pages 433ff (PDF-pages 147ff in NISTNCSTAR1-3CAppxs.pdf)

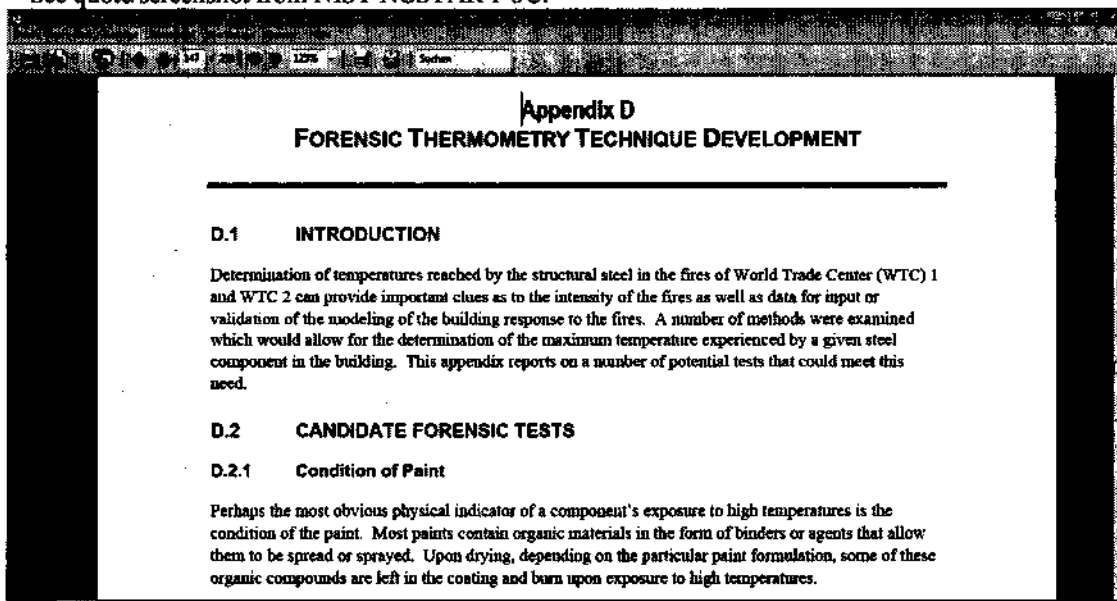
where the method of unaided visual examination would be discussed by NIST as a possibly useful method to check whether steel was affected by high temperatures. Instead, NIST let it appear as if the new paint-based method would be the only one that was “easy to perform in the field”;<sup>57</sup> and NIST even states: “Perhaps the most obvious physical indicator of a component’s exposure to high temperatures is the condition of the paint.”<sup>58</sup> This statement

<sup>57</sup> See quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



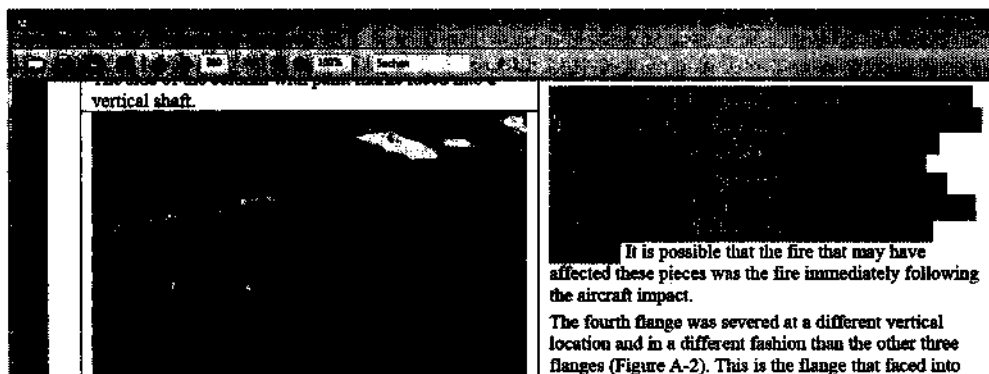
From the analytical techniques NIST selected to study, the paint based method might in fact be the best to use “in the field.” What NIST does not mention is that it excluded the common method from its list.

<sup>58</sup> See quote/screenshot from NIST NCSTAR 1-3C.



by NIST is especially remarkable when one considers the fact that the paint was likely to fall off steel that reached temperatures from 650°C onwards, a fact NIST is well aware of. NIST's alleged "most obvious physical indicator" can – per design – hardly work on all those areas that experienced temperatures of approximately 650+ °C, while the common method yields results at higher temperatures. If NIST would have included common visual examination as a possible method in its discussion, there would have been no way for NIST to argue that the paint based method was a good substitute for the common method. So it makes sense that NIST acts and writes throughout the report as if there was no method of unaided visual examination to screen columns and panels for exposure to high temperatures.

But NIST was not able to get rid of the common method just by pretending that it did not exist. NIST's contractor WEJ delivered, already in November 2003, the above mentioned report where the common method was used to examine whether selected WTC steel members, including core columns and perimeter panels from the impact and fire areas, might have experienced high temperatures. WJE used unaided visual examination as the only method applied, and based all results, including those related to the subjects "elevated temperatures / fire damage of steel," on the common method. For example, WJE relied on the shape of the bends, and on the lack of cracking in the bent area of core column C-88b when discussing its possible heat damage; see quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



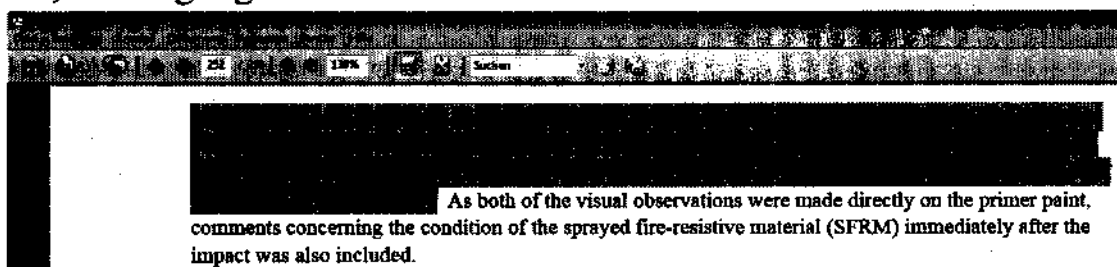
WJE's report confronted NIST with two problems: the existence and general acceptance of the common method is acknowledged by this report, and WJE provided some results that had the potential to cause a problem for NIST's premise.<sup>59</sup>

NIST reacted with a "review" of the WJE report, the "Summary" of which is published as Appendix G of NIST's sub-file NIST-NCSTAR 1-3C

<sup>59</sup> There is no indication that WJE deliberately wanted to cause NIST and NIST's premise any problems. In contrast, WJE made sure to report mainly about pieces from the impact and fire areas. Interesting pieces like C-30 or the wide flange section visible on the photograph behind C-71, and parts from the lower stories are not mentioned in WJE's report. WJE states in this respect, that, while they "observed" all 236 pieces "in a general fashion," the allotted on-site time made it impossible "to make detailed observations on all 236 pieces." WJE further states: "Therefore, the priority was to examine pieces identified by NIST to be from close to the aircraft impact locations on WTC 1 and WTC 2, and pieces that had obvious visual indications of the effects of fire following aircraft impact and before the collapse of the towers. A limited survey was made of connections on exterior column pieces from WTC 1 and WTC 2. WJE also included observations on a limited number of pieces believed to be recovered from structures other than WTC 1 and WTC 2." (NIST NCSTAR 1-3C, Appendix F, page 462; PDF-page 176 in NIST NCSTAR1-3CAppxs.pdf). With this argument WJE excluded from their report steel from below the impact and fire areas from being systematically examined despite its relevance to determine the cause of the complete destruction. As it was stated already, one can expect that engineers and architects are aware that the relevant question related to the WTC destruction is why the Towers were completely destroyed, and that they must be aware that detailed descriptions of airplane impact damage on steel columns in an airplane impact area, and of fire damage to pieces in the fire affected area located on top of the huge and strong part that gave way are rather unlikely to answer this question. WJE was even tasked to provide "independent identification of recovered steel of particular interest to the furtherance of other tasks under Project 3." (Quoted from NIST's review of WJE's report; NIST NCSTAR 1-3C, page 473; PDF-page 249 in NIST NCSTAR1-3CAppxs.pdf). WJE chose - in line with NIST's premise - to spend the allotted on-site time mainly on documenting the kind of damage one would expect anyway and that is rather unlikely to give any clues why the Towers were completely destroyed.

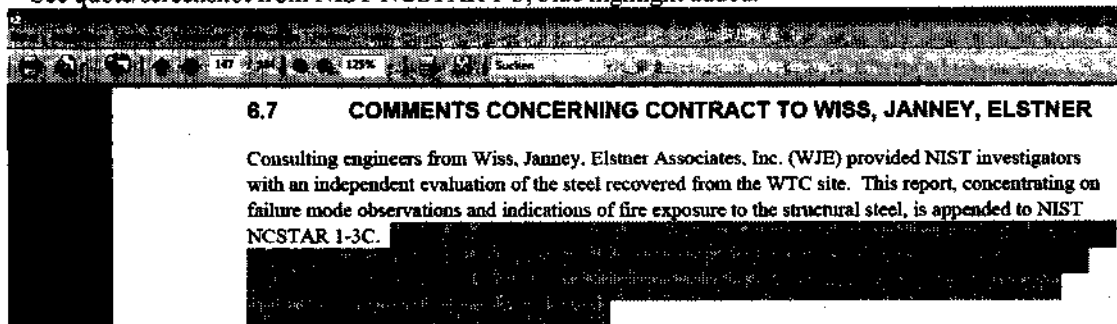


(pages 473ff). It's not surprising that NIST agrees in general in its "review" with all observations made by WJE that are not related to the subjects "elevated temperatures / fire damage of steel."<sup>60</sup> The general problem that WJE used the common method was "solved" by NIST by listing "WJE observations" and "NIST observations" next to each other for those pieces where WJE noted the possibility that the piece was damaged by the jet-fuel and office fires. See the following quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



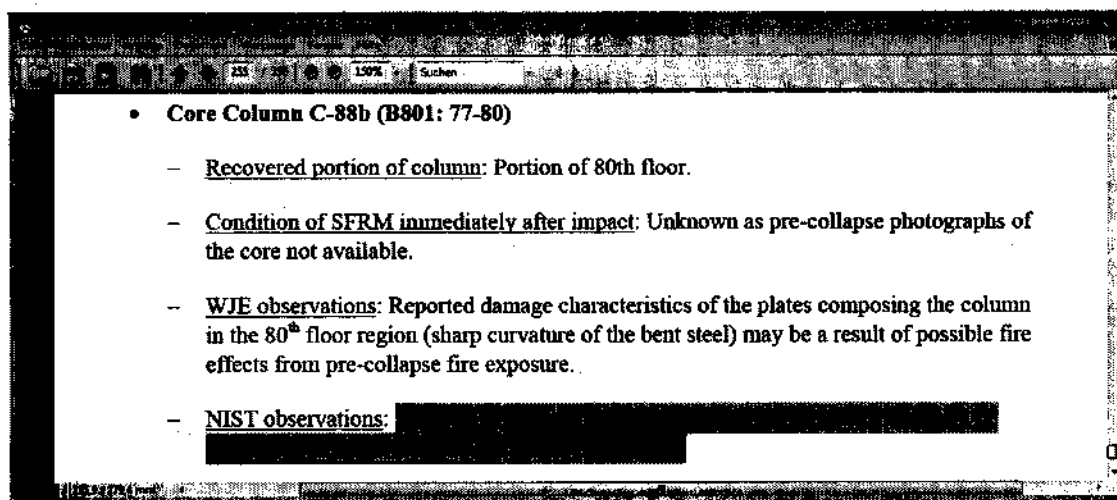
NIST's "observations" in these list are not based on the condition of the actual steel, but on the paint-cracking method. NIST notes whether a mud-cracking pattern of the paint was observed or not, and if paint was left on the piece. In addition, NIST lists the results of its fire exposure maps (which are based on videos and photos from September 11, 2001), and if the SFRM was lost or more likely not (based on the named photos and videos too). When no paint

<sup>60</sup> See quote/screenshot from NIST NCSTAR 1-3, blue highlight added.



The "additional forensic evidence" mentioned by NIST refers to the results of its paint-based method, and its fire exposure maps (based on videos and photos from September 11, 2001). See NIST NCSTAR 1-3C, Appendix G, page 475 (PDF-page 251 in NISTNCSTAR1-3CAppls.pdf)

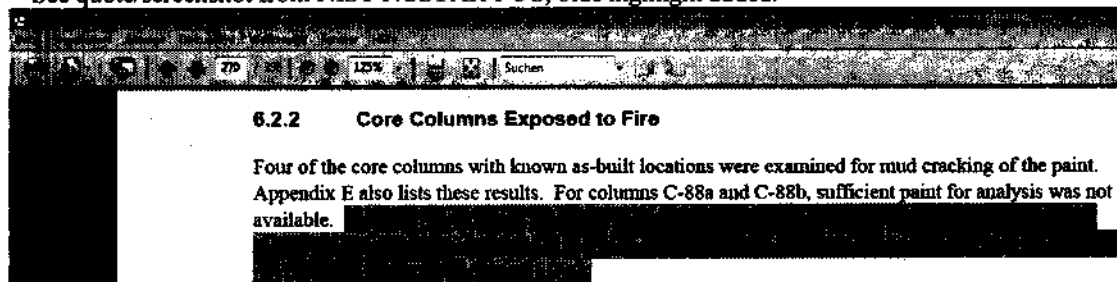
was left on a certain piece of steel, NIST states that they were not able to make a conclusion. See as an example a part of NIST's "review" regarding column C-88b (quote/screenshot from NIST NCSTAR 1-3C, blue highlight added).<sup>61</sup>



By doing so, and by not following up on pieces like C-88b<sup>62</sup> just for the reason that no paint was available, where WJE saw possible evidence for heat damage, NIST implicitly determined that the only examination method it considered reliable when screening the columns was their paint test, and that the results of their paint test "beat" results that are based on the common

<sup>61</sup> The not captured part states: "Pre-collapse photographic evidence: While the column was located within the fire floors, no direct information was available on the exposure of pre-collapse fires."

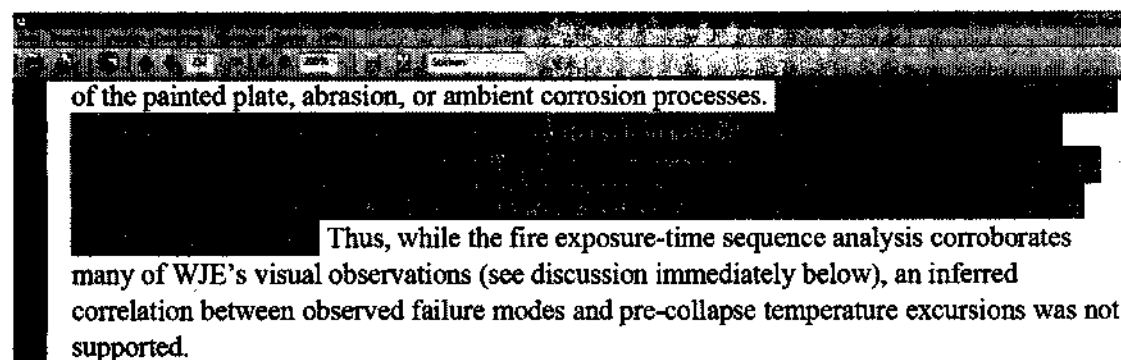
<sup>62</sup> See quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



NIST established only for two of the 55 "catalogued" columns discussed in that NIST discuss in paragraph 4.1 "CORE COLUMNS", NIST NCSTAR 1-3C, a result regarding their possible exposure to high temperatures.

unaided visual examination, even when no paint was left to be examined. It fits well that NIST does not really discuss the differences in the results (between WJE and NIST “observations”) further; NIST needed to get rid of the common method without making the general problem it has with WJE’s report too obvious. The result, that NIST substituted for the common method its paint based method, becomes only clear when one checks NIST-NCSTAR 1-3C to see whether NIST followed up on pieces like C-88b, which they did not.<sup>63</sup>

Another result of WJE was rejected by NIST explicitly, namely, WJE’s interpretation of buckled plates of exterior columns as possibly heat damaged while in the building. See quote/screenshot from NIST NCSTAR 1-3C, page, with NIST’s argument regarding the buckled column plates (blue highlight added).



If NIST would have accepted WJE’s interpretation, NIST would have needed to conclude that numerous perimeter panels from stories outside of the fire areas “that had similar localized plate buckling of columns” might have been affected by high temperatures while still in the building, and to follow-up on this. To avoid this NIST determined – without any experiments or at least references from the literature – that WJE’s interpretation of the localized plate buckling was unreliable (See last sentence in quote/screenshot above). When

<sup>63</sup> C-88b and C-88a were the only WTC 2 core columns NIST considered as relevant for its investigation.

different methods yield conflicting results one needs to assess possible reasons for this by validating the methods side by side and/or by following up using additional methods. NIST did not do this, but instead determined based on its premise that results based on the common method were unreliable. NIST cannot provide any proof that the columns in non-fire floors cannot have been affected by high-temperatures while still in the building. On the contrary, the deformation of column C-30, the horse-shoe bend column from “Relics in the Rubble,” or Astaneh-Asl’s observations, for example, suggest that steel members from outside the impact and fire areas were affected by high temperatures while they were still in the buildings. It was NIST’s duty to examine pieces like the buckled plates of exterior columns from outside the fire areas in depth, but NIST instead determined that these pieces cannot have experienced heat damage while in the buildings<sup>64</sup> and dismissed WJE’s results, and by this also the reliability of the common method, without any evidentiary justification.

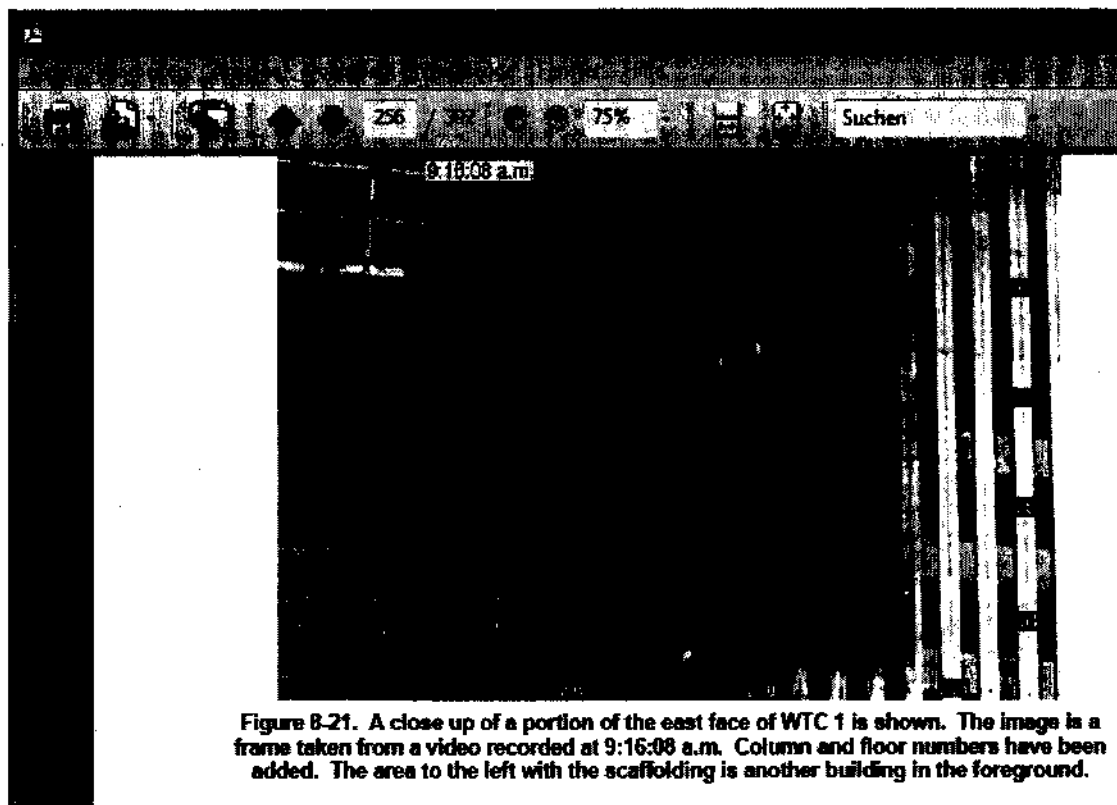
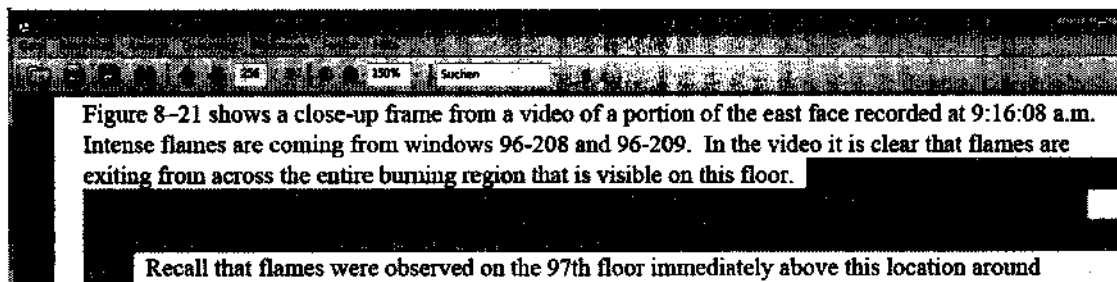
There exists enough evidence in general for very high temperatures – too high to be caused by office and jet fuel fires – before and during the final destruction of the WTC.<sup>65</sup> With “glowing caretts” that glow bright white, with a “metal fire” with a “very bright white flame” and “molten flows” in the vicinity of the metal fire,<sup>66</sup> NIST even documents evidence for extremely high

<sup>64</sup> NIST, which cooperates closely with the NFPA (see, for example, <http://www.nfpa.org/assets/files/pdf/biechman.PDF>), should be in general well aware of the fact that heat sources other than mere fires can affect a building. NIST also has a building and fire research facility <http://www.nist.gov/building-and-fire-research-portal.cfm>, <http://www.nist.gov/bfsi-portal.cfm>), and NIST employees are even members of the “Technical committee on fire investigations” that has been developing the cited NFPA 921 Guide for Fire and Explosion Investigations. See also the NFPA 921 Guide: 6.2.2.2\* [...] *Burning metals and highly exothermic chemical reactions can produce temperatures significantly higher than those created by hydrocarbon- or cellulosic-fueled fires.*

<sup>65</sup> See, for example, S.E. Jones, J. Farrer, G.S.Jenkins, et al.: “Extremely high temperatures during the World Trade Center destruction,” in *Journal of 9/11 Studies* 2008, <http://www.journalof911studies.com/articles/WTCHighTemp2.pdf>

<sup>66</sup> NIST avoids addressing the bright, whitish-yellow glowing color of the molten material at the point where it flows out of the building, which shows its very high temperature, but instead speculates about its composition. One of the photographs below shows also whitish smoke next to a “flow” (near the inserted number “79”).

temperatures in the still standing buildings, though without acknowledging the implication of the documented evidence. See quotes and photographs (screenshots) from NIST NCSTAR 1-5A and NIST NCSTAR 1-5, blue highlights added.



The intense fire in the northeast corner opening of the 81st floor is still present. An unusual flame is visible within this fire. In the upper photograph in Figure 9-44 a very bright white flame, as opposed to the typical yellow or orange surrounding flames, which is generating a plume of white smoke, stands out. The intensity of this flame is considerably brighter than normal flames. It was easily identified in numerous photographs and videos shot from long distances at which the surrounding "normal" flames were not visible.

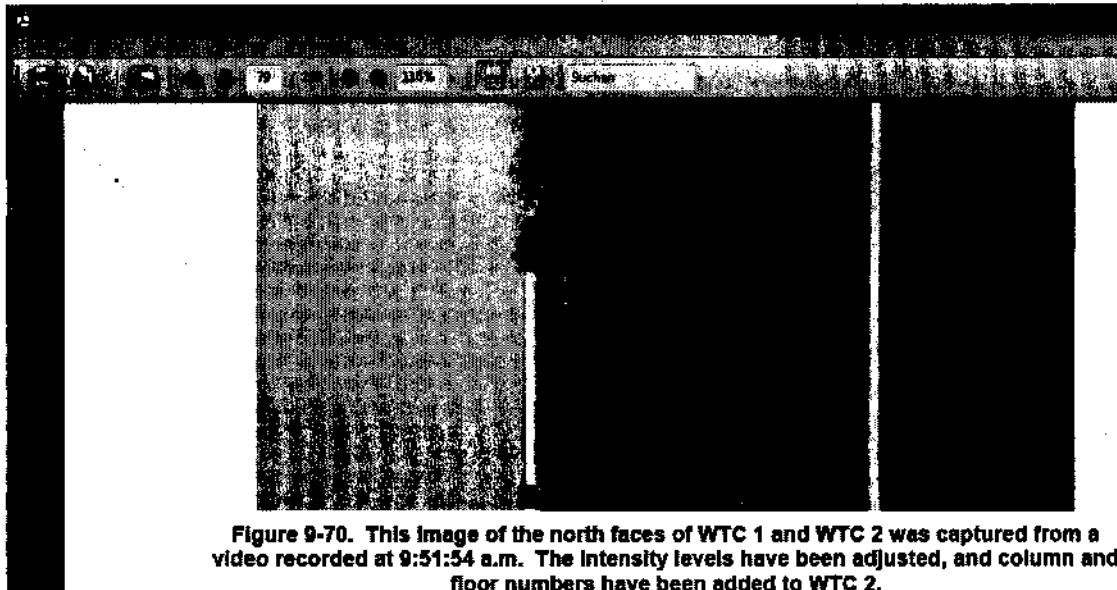
It is difficult to identify what type of metal is burning. Aluminum will burn, but in normal fires it usually melts instead because the metal surface is protected by an oxide layer that must be breached before ignition can take place. Aluminum oxide melts at high temperatures that are not typically reached in normal fires. There were limited quantities of other metals on the aircraft that might also burn. Whatever the metal, the ignition of a metal fire is an indication of the significant heating of the debris that took place in the northeast corner of the 81st floor due to the prolonged intense burning in this area following the aircraft impact.

the fire on the 83<sup>rd</sup> floor had spread upward. Close-up photographs and videos during the period revealed a distinct outward bulge of the steel columns in the vicinity of the debris pile near the center of the 79<sup>th</sup> floor. Just before 9:52 a.m., puffs of smoke and/or dust were expelled from multiple locations on the north face near the east edge.

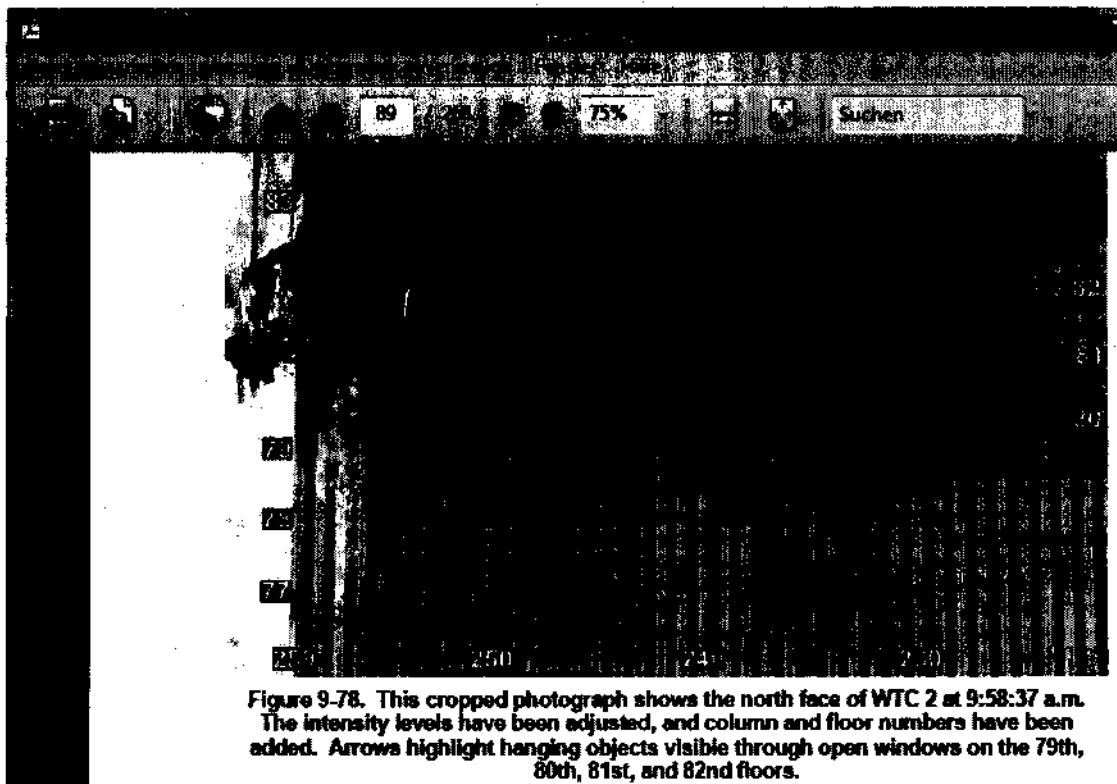
The composition of the flowing material can only be

At 9:57:21 a.m., shortly after another pressure pulse,





**Figure 9-70.** This image of the north faces of WTC 1 and WTC 2 was captured from a video recorded at 9:51:54 a.m. The intensity levels have been adjusted, and column and floor numbers have been added to WTC 2.



**Figure 9-78.** This cropped photograph shows the north face of WTC 2 at 9:58:37 a.m. The intensity levels have been adjusted, and column and floor numbers have been added. Arrows highlight hanging objects visible through open windows on the 79th, 80th, 81st, and 82nd floors.

NIST documents also evidence for “unusual fire behavior” in their timelines.<sup>67</sup> Unusual fire behavior is an indication that incendiaries might have been used, and it would have been NIST’s responsibility to follow up on this indication with appropriate tests on the physical evidence steel.<sup>68</sup>

Had NIST not reviewed WJE’s report NIST would have implicitly had to acknowledge that the common method of unaided visual examination was a reliable method to check steel for high temperatures exposure, and the obvious question, like the elephant in the room, would have been why NIST did not follow up on the heat damage on smoothly bent pieces like column C-30, or on the buckling of perimeter column plates that were from non-fire floors but showed a similar buckling pattern like columns that WJE interpreted as being possibly caused by fire damage while the columns were still in the building. NIST would also have to acknowledge that pieces with no paint left needed to be followed up with other methods; WJE interpreted, in line with the common method, the loss of paint as a possible sign for exposure to high temperatures. But NIST wanted to conclude from the loss of paint only that “no conclusion” can be made; respectively, NIST “needed” to conclude this in order to safeguard its premise. One of the two “advantages” of NIST’s new developed paint-cracking method of microscope aided visual examination is exactly that only such areas of steel that experienced temperatures between 250 and 650°C have to be recognized as possible affected by high temperatures.

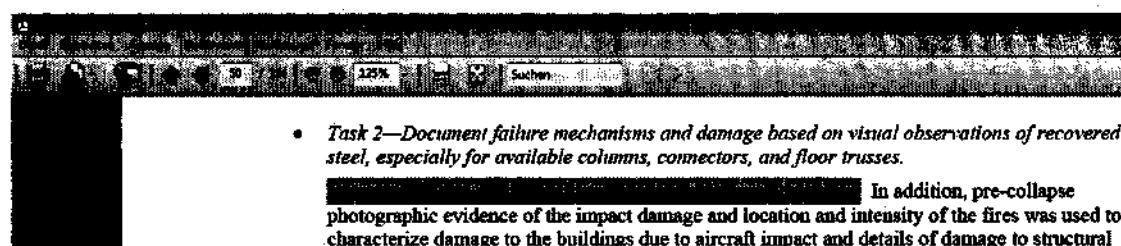
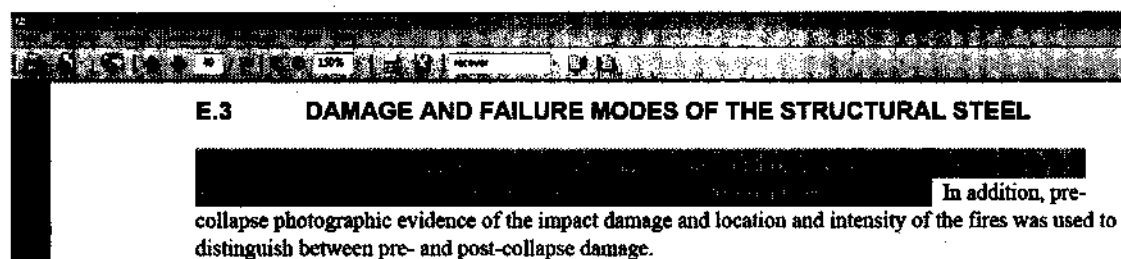
## **(V) Misleading Statements**

Both in the “Executive Summary” and in Chapter 1 of NIST NCSTAR 1-3 it is claimed by NIST that: “Extensive failure analysis of the recovered steel was conducted to determine damage characteristics, failure modes, and

<sup>67</sup> See NIST NCSTAR 1-5 and sub-files, for example, “Chapter 5.3 UNUSUAL BURNING AND SMOKE BEHAVIORS”, NISTNCSTAR 1-5A pages 52f (PDF-pages 148f in NISTNCSTAR1-5A\_chap\_1-8pdf)

<sup>68</sup> See the NFPA 921, Chapter 22, especially “22.2.5 Unusual fuel load or Configuration”.

fire-related degradation of the recovered structural components.” See quotes/screenshots from NIST NCSTAR 1-3, blue highlights added.



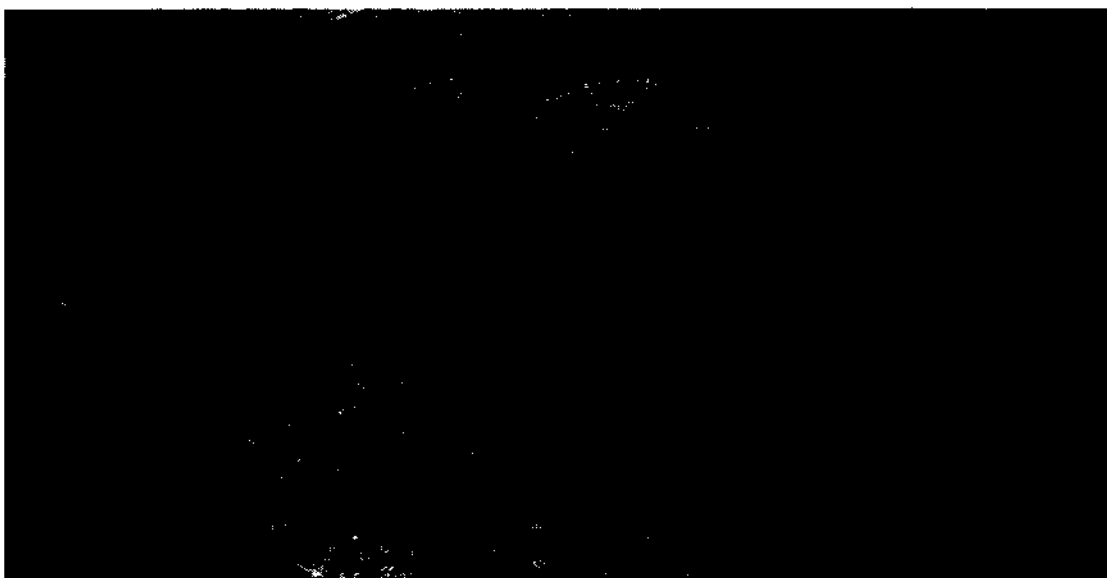
Performing an “extensive failure analysis of the recovered steel” was NIST’s duty when conducting the WTC investigation; but this is not what NIST did. NIST excluded 51 “catalogued” columns of the 55 columns discussed in paragraph 4.1 “CORE COLUMNS” (NIST NCSTAR 1-3C) and all of the many pieces of Twin Tower steel left in hangar 17 from any “extensive failure analysis.” Three examples for “catalogued” and identified core columns for which there is no discussion of the damage and failure modes in NIST’s report are given here: Column C-65 (WTC 1, floors 86 to 89, below of the impact and fire area);<sup>69</sup> Column C-71 (WTC 1, floors 77-80, well below of the impact and fire area); Column C-90 (WTC 2, floors 12-15,

<sup>69</sup> See photograph from

well below of the impact and fire area). See photographs from NIST NCSTAR 1-B.<sup>70</sup>



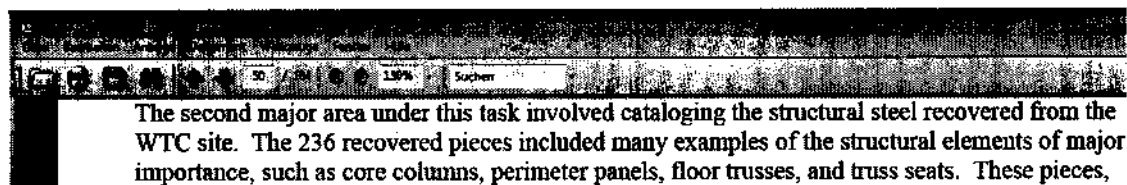
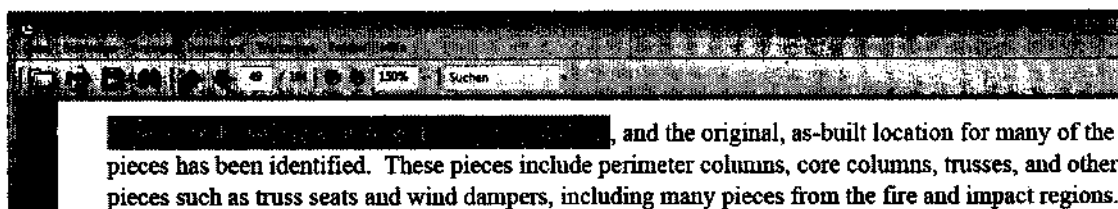
Source: NIST.



<sup>70</sup> C-60 and C-65: photograph from NIST NCSTAR 1-3B, page 40 (PDF-page 68). C-60, an unidentified column (NIST NCSTAR 1-3B, page 10, PDF-page 38) is to the right hand side in the photograph, C-65 is to the left hand side. C-90: photograph (cropped) from NIST NCSTAR 1-3B, page 44 (PDF page 72). For a photograph of C-71, see above, page 22.

These are just a few examples for the many columns for which NIST did not examine the damage and failure modes at all.

NIST is also not eager to let the reader know that it excluded many pieces of steel from its investigation from the very beginning, and how many were excluded. The “Abstract” at the beginning of the report concerning NIST’s Project 3 (i.e., the file NIST NCSTAR 1-3 and sub-files) let the reader believe that “the” recovered steel was examined.<sup>71</sup> In the very first page of Chapter 1 of NIST’s section on steel, it is misleadingly stated that a “total of 236 pieces were recovered and catalogued.” See quote/screenshot from NIST NCSTAR 1-3, blue highlights added.



NIST does not explain the meaning of the term “catalogued steel” when it is first used (which is in the “Executive Summary” of the section on steel, paragraph “INVENTORY OF RECOVERED STEEL,” page xxxviii<sup>72</sup>); but the reader has to read an 8-line long paragraph in “Chapter 5, STEEL INVENTORY AND IDENTIFICATION” to become aware that much more than just the 236 pieces were recovered, and that there exists more steel than

<sup>71</sup> See quote/screenshot from NIST NCSTAR 1-3, “Abstract”, page 2 (PDF-page 50) above.

<sup>72</sup> Quote: “E.2 INVENTORY OF RECOVERED STEEL

A total of 246 recovered pieces of WTC steel were catalogued: the great majority belonging to the towers WTC 1 and WTC 2.”

just the “catalogued” pieces. The large number of steel pieces that were recovered by PANYNJ, but not “catalogued” by NIST and thus excluded from having at least a chance to be examined, is not mentioned by NIST. There are several statements in NIST’s report that are likely to misguide any reader who misses the small paragraph about the steel in hangar 17 into believing that only the 236 “catalogued” pieces were saved. See the above quotes, or, as another example, NIST’s statement: “Due to the small number of samples, statistical data of the various damage features and failure modes would be irrelevant.”<sup>73</sup>

NIST would have needed to write “Extensive failure analysis of the recovered *truss connectors from identified panels, and of two core columns, and of [about] 15 out of 153 “catalogued” perimeter columns* was conducted ...” and add something about the number of unexamined pieces in hangar 17 at JFK airport, in order to have a statement that is not gravely misleading.

NIST’s published report is not clear about how other steel parts (other than core columns and perimeter panels) like core channels and trusses were screened systematically regarding as to whether they experienced high temperatures. In NIST 1-3C it is explicitly stated: “Visual inspection for the fire effects on recovered steel was conducted solely on the perimeter panels and core columns, as they were the only structural elements with known as-built locations.” Based on this one would conclude that NIST did not examine pieces other than core columns and perimeter panels (i.e., those with known as-built locations in the impact and fire areas, see above) for their possible exposure to high temperatures.<sup>74</sup> But NIST lists in Chapter 6.3.4, “Unique

<sup>73</sup> See NIST NCSTAR 1-3C, chapter 4.1 “Core Columns.” (see screenshot above)

<sup>74</sup> In the case of the “catalogued” core channel pieces, NIST published a list of failure modes, but did not mention exposure to high temperatures in this list, and did not mention in the published report that the channels were examined systematically for high temperatures exposure. NIST also does not mention any results of a systematic



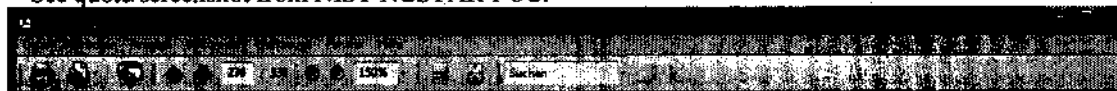
Cases of Damage Possibly related to Elevated Temperatures,” two thinned truss rods among the five pieces that “were identified from visual inspection as having unique physical damage that may have been related to elevated temperature exposure.”<sup>75</sup>

The visual examination of the other three pieces, referred to in the first paragraph of Chapter 6.3.4, was solely paint-based (as far as NIST's reported examination is concerned, one column is included because of Appendix C of the FEMA/BPAT report), but for NIST's visual examination of the truss rods the common method must have been used.<sup>76</sup> The two rods are the only two

---

screening of the “catalogued” trusses and the few remaining other “catalogued” pieces for high temperature exposure.

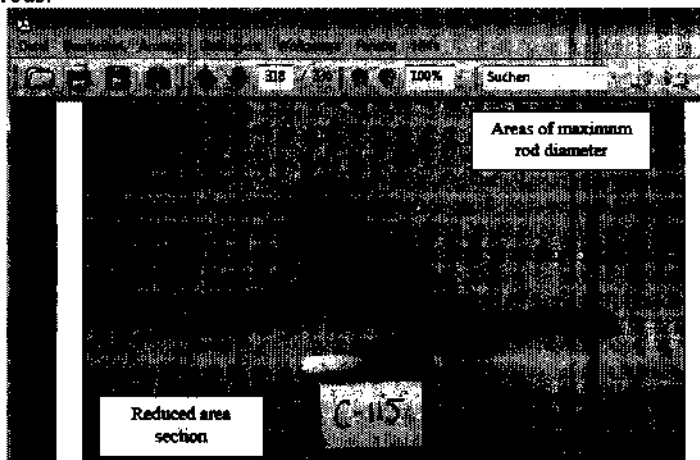
<sup>75</sup> See quote/screenshot from NIST NCSTAR 1-3C.



#### 6.3.4 Unique Cases of Damage Possibly Related to Elevated Temperature Exposure

Five samples of the NIST inventory were identified from visual inspection as having unique physical damage that may have been related to elevated temperature exposure. Three were perimeter columns (from panels K-1 and K-2 and single column K-16), and two were floor truss materials (C-115 and C-131). As these samples were distinctive among the entire group, an in-depth investigation of their damage features was conducted with the results discussed in detail below.

<sup>76</sup> There is no paint left on the truss rods, and the paint used for the trusses was also not validated by NIST for a possible mud-cracking effect. See photograph/screenshot from NIST NCSTAR 1-3C that shows one of the truss rods.



pieces mentioned in NIST's report where the common method was used to determine which pieces might have been possibly exposed to high temperatures. It is gratifying that NIST used the common method at least on two of the many hundreds of recovered pieces of saved WTC steel, thus acknowledging implicitly its awareness of the usefulness of the common method. But NIST's explanations in Chapter 6.3.4 also have the effect that NIST's systematic exclusion of the common method of visual examination (when examining the core columns and the perimeter panels) and NIST's non-examination of the other pieces for their possible exposure to high temperatures will not be obvious to those readers that choose to read only some selected parts of NIST's published report. The systematic exclusion of the common method of visual examination when the steel was examined for possible exposure to high temperatures is also less apparent as one would expect in a report written by scientists and engineers because NIST uses the term "visual examination" for both the common unaided visual examination<sup>77</sup> and for its microscope aided, paint-based visual examination, without explaining that they use the term for two different methods.

NIST not only excluded most of the physical evidence steel from being adequately examined for their failure modes, and went to great lengths to get rid of the common method of unaided visual examination (and the data that the use of this method might have yielded), but NIST also employs misleading statements to hide these two facts as well as possible.

---

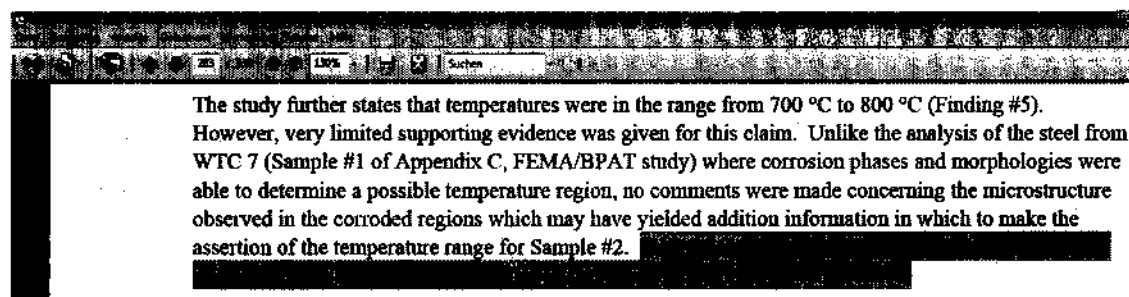
<sup>77</sup> I.e. unaided visual examination regarding questions not related to the examination of steel for possible high temperature exposure, except the statement that relates also to the truss rods in Chapter 6.3.4

## (VI) Further Problems

### The two samples from Appendix C of the FEMA/BPAT study

NIST was not able to apply its exclusionary tactics in the case of two pieces that were described already in Appendix C of the FEMA/ BPAT report that called for a more detailed study of its two samples.<sup>78</sup>

The Appendix C sample (2), a heavily corroded perimeter column, was examined by NIST (referred to by NIST as K-16), with the result that NIST concluded that it must have been exposed to even “much higher temperatures” than the 700 to 800°C assumed in Appendix C.<sup>79</sup> See quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



By this NIST acknowledges that a piece with an as-built location far below the impact and fire area must have been at temperatures that were much higher<sup>80</sup> than the range of 700 to 800°C, either while it was still part of the building, or after the destruction.

Even had there been office fires next to K-16, they would not have had much of an effect on it, because its fireproofing cannot have been damaged by the airplane impact. NIST assumes that K-16 was affected by the high

<sup>78</sup> See above, footnote # 15.

<sup>79</sup> The term “[t]he study” refers to Appendix C “Limited Metallurgical Examination” (see above).

<sup>80</sup> NIST gives only an indirect statement regarding the temperatures reached. The minimum temperature must have been above 830°C. See NIST NCSTAR 1-3C, pages 231f (PDF-pages 281f)

temperatures in the piles.<sup>81</sup> But a mix of unburnable construction materials and dust covered, shredded office contents cannot sustain fires that burn hot enough to explain the high temperature exposure of K-16<sup>82</sup>. By assuming that the high temperature corrosion process happened in the piles, NIST needed to acknowledge implicitly the high temperature phenomena evident in the piles.<sup>83</sup> But NIST does not do this in their published report. Instead NIST declares the data obtained based on its examination of K-16 as not relevant for its WTC investigation (arguing that the “degradation phenomenon had no bearing on the weakening of the steel structure or the collapse of the

<sup>81</sup> NIST states that the possibility that the steel was exposed to the high temperatures while part of a building was “unlikely.” This “unlikely” but not ruled out option is not further discussed by NIST. NIST assumes that the steel was corroded while it was in the piles because of the fact that areas of the two web-plates of the column were corroded heavily by a high temperature attack, while the flanges of the column in the same area were not much affected, concluding that the piece must have been in a horizontal position during the corrosion process. See quote/screenshot from NIST NCSTAR 1-



#### Single Column K-16

The third example of a unique damage feature of a perimeter column was found on sample K-16. (As discussed below, a piece sectioned from this column prior to arrival at NIST was studied and reported on in the Federal Emergency Management Agency [FEMA]/Building Performance Assessment Team [BPAT] [McAllister 2002] report, Appendix C.) This was a single, unidentified column that experienced what appeared to be a large amount of material degradation as a consequence of erosion/corrosion processes, Fig. 6–20. Of all the recovered steel examined, this was the only case where this type of degradation was observed on a perimeter or core column. The damage consisted of localized thinning in the outer and inner web plates in this area, leading to significant perforations in the outer and inner webs. The stampings at the base of the column on the flange indicated that it was a 50 ksi column with column type 143. The database of all columns showed that columns matching this description were no higher than the 52nd floor level in WTC 1 and the 53rd floor level in WTC 2. Therefore, it was unlikely that this column experienced degradation prior to the collapse of the towers. The attrition appearance of the column, in terms of the two webs experiencing the highest degree of degradation with minimal attack observed on the flange sections, also indicates that the column was in a horizontal position while the attack occurred.

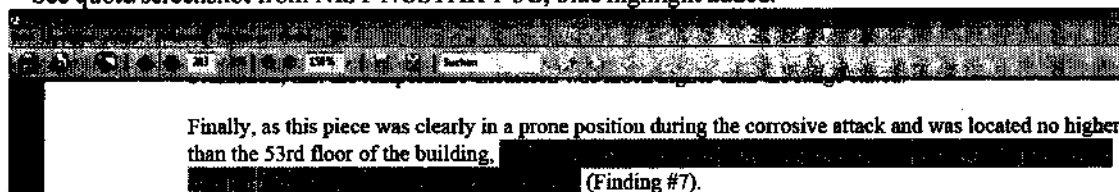
3C:

<sup>82</sup> K-16 has also an unusual corrosion scale. Quote: “The darker gray phases in the scale interior appeared to be iron oxides containing high levels of Ca, as well as minor quantities of Cl, Si, and S. The bulk gold-colored phases, as well as the majority of phases in the grain boundaries, were iron sulfides.” NIST NCSTAR 1-3C, page 230 (PDF-page 280).

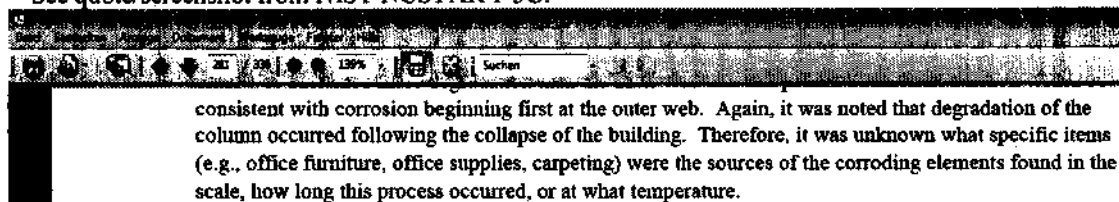
<sup>83</sup> The high temperatures in the piles are documented by many different sources. For some sources see Dreger, A.: “Sources related to exceptionally high temperatures, and/or to persistent heat at Ground Zero. Disinformation regarding the phenomena of “molten steel”/exceptionally high temperatures/ persistent heat at Ground Zero. Pre-collapse pressure pulses” [http://911research.wtc7.net/papers/dreger/GroundZeroHeat2008\\_07\\_10.pdf](http://911research.wtc7.net/papers/dreger/GroundZeroHeat2008_07_10.pdf).

building”)<sup>84</sup> and distracts from the relevant problem that K-16 proves the use of heat sources other than mere fires (either in the building or in the pile) with the statement that it was “unknown at what temperature” the corrosion process occurred.<sup>85</sup> But by determining that the process happened at temperatures well above the range stated in FEMA’s Appendix C, NIST provides relevant data regarding the temperatures at which the corrosion process occurred, namely data that show that the corrosion process occurred at temperatures that are much higher than those that fires in dust covered and oxygen starved “collapse piles” can possibly produce.<sup>86</sup> By not addressing or discussing this problem, NIST implicitly declares the “incident scene” as not relevant for its investigation of the “incident.”<sup>87</sup> But all available data – including all data from the incident scene,<sup>88</sup> – are supposed to be collected and discussed, a fact which is certainly known by NIST, which cooperates closely with the NFPA,

<sup>84</sup> See quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



<sup>85</sup> See quote/screenshot from NIST NCSTAR 1-3C:



<sup>86</sup> It is also very far-fetched that fire (as assumed by NIST) can affect the two web-plates heavily, but has only minor effects on the flanges.

<sup>87</sup> NIST explicitly declared the “incident scene” as not relevant in their 2006 FAQ’s (quote): “The condition of the steel in the wreckage of the WTC towers (i.e., whether it was in a molten state or not) was irrelevant to the investigation of the collapse since it does not provide any conclusive information on the condition of the steel when the WTC towers were standing.” [http://wtc.nist.gov/pubs/factsheets/faqs\\_8\\_2006.htm](http://wtc.nist.gov/pubs/factsheets/faqs_8_2006.htm)

<sup>88</sup> The term “crime scene” was more appropriate, but NIST’s spokespersons underline in interviews that NIST did not conduct a criminal investigation. See, for example, the statement S. Sunder (Lead Investigator of NIST’s WTC investigation) gave in a radio interview in 2008: “This is a technical investigation, it’s not a criminal investigation.” [http://noliesradio.org/archives/Nist%20Dr%20Sunder%20Interview\\_080821\\_widmusic-web.mp3](http://noliesradio.org/archives/Nist%20Dr%20Sunder%20Interview_080821_widmusic-web.mp3)



and participates in the Technical Committee that develops the statements in the NFPA 921.

NIST did not examine sample (1) from Appendix C. NIST leaves it to the reader to choose whether NIST wants to justify this because the metallurgical examination documented in NIST NCSTAR 1-3C was done only for recovered Twin Tower steel, or because sample (1) was not unambiguously identified as being from WTC 7. NIST's statements vary.<sup>89</sup> In favor of the first option, NIST fails to analyze sample (1) as part of their WTC 7 investigation; for the second, NIST fails to discuss the possible provenance of sample (1). Just stating that no steel "was unambiguously identified as being from WTC 7" is not an adequate substitute for an analysis of the provenance of sample (1). For both options, NIST fails to give any discussion regarding the failure modes of sample (1), and fails to show how the failure mode of this piece was - independently from its as-built location - possibly explicable in line with NIST's premise.<sup>90</sup>

<sup>89</sup> On one hand, NIST NCSTAR 1-3C, "Damage and Failure Modes of Structural Steel Components," mentions sample (1) in one sentence as a WTC 7 sample. See quote/screenshot from NIST NCSTAR 1-3C, blue highlight added.



The study further states that temperatures were in the range from 700 °C to 800 °C (Finding #5). However, very limited supporting evidence was given for this claim.

no comments were made concerning the microstructure observed in the corroded regions which may have yielded addition information in which to make the assertion of the temperature range for Sample #2. The present analysis found, through a microstructural

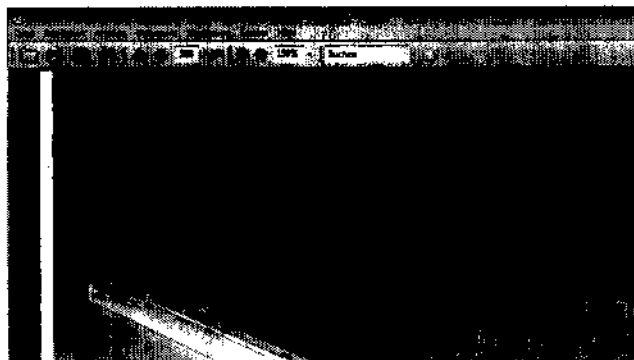
That sample (1) is not examined by them is then explained indirectly with the statement "WTC 7 steel was not evaluated in this study of the tower damage and failure modes." [sic!] (quoted from NIST NCSTAR 1-3C, page xliii, PDF-page 45; similar page 2, PDF-page 53). By this the examination of sample (1) can be understood as just being postponed because it is a WTC 7 and not a Twin Tower steel sample (but the 2008 WTC 7 report gives no discussion of sample (1) either.) On the other hand, NIST states in NIST NCSTAR 1-3 that "no steel was recovered from WTC 7 and in NIST NCSTAR 1-3C that "no pieces could be unambiguously identified as being from WTC 7" (NIST NCSTAR 1-3, pages iii and xliiv, PDF-pages 5 and 46, similar on other pages; NIST NCSTAR 1-3C, page 5, PDF-page 55 and similar in NIST NCSTAR 1-3D, page 273, PDF-page 307.)

<sup>90</sup> It might have been justified to omit further discussion of sample (1) if it was shown that the sample was most likely not from WTC 1, WTC 2 or WTC 7. But this was not shown by NIST.



### Perimeter panel K-1

A part of the perimeter column 280 from panel K-1 was examined by NIST further for its possible exposure to high temperatures; WJE singled it out as a “unique” piece, and suggested that it might have been fire affected.<sup>91</sup> The “accordion-like collapsed part” of the crushed part of the column “remains in general concentric alignment with the lower portion of the same column, which is relatively undistorted even after salvage and recovery operations.”<sup>92</sup> One photograph (cropped) showing column 280<sup>93</sup>.



NIST took just one sample and concluded, based on the metallurgical examination of this one sample that the whole crushed part of the column did not experience temperatures above 500°C. But steel does not conduct heat readily, and the crushed part was at least approximately 2.5 meters high, web and flange plates were approximately 35cm wide. That different areas of the column can have been differently affected is underlined by NIST’s description of the different conditions of the surface of the column in the 98<sup>th</sup> story part:

<sup>91</sup> The crushed part of column 280 was not affected by NIST’s “review” because NIST found paint at the crushed part. NIST’s statement in NIST NCSTAR 1-3C is not clear whether they found the mud-cracking pattern: “However, there were a few localized areas of remaining paint available that indicated mud cracking did occur as shown in Appendix E.” (The table in Appendix E does not “show” anything, but lists the result that mud-cracking was observed.) NIST might have chosen to follow-up on K-1 for the reason that WJE documented it already on photographs in its report.

<sup>92</sup> NIST NCSTAR 1-3C, page 470 (PDF-page 184 in NISTNCSTAR1-3CAppdx.pdf)

<sup>93</sup> Source of photograph (cropped): Figure 22 in WJE’s report, NIST NCSTAR 1-3C, page Fig-493 (PDF-page 207 in NISTNCSTAR1-3Appxs.pdf). The part to the left hand side is the spandrel plate. There are further photographs of K-1 in WJE’s report and in NIST NCSTAR 1-3 and 1-3C.

“a majority of the paint was missing, with a fair amount of corrosion product on the surface [...] However, there were a few localized areas of remaining paint available ...” NIST observed on the one examined sample an oxide scale that was “somewhat dense and continuous, but non-uniform in thickness,” with the “latter characteristic” due to “localized scale penetration into the flange material ...”<sup>94</sup> NIST, which does agree that the damage was sustained in the building,<sup>95</sup> should have been interested in a more throughout examination of column 280 – story 98 was the story where the “collapse” of WTC 1 according to NIST most likely started, and the failure mode of column 280 is indeed unusual (it is so unusual that WJE’s report has an extra paragraph about K-1 in its “Discussion” part<sup>96</sup>). Box-columns affected by temperatures of approximately 500°C and loaded do not typically look afterwards like a piece of fabric that was folded just under its own weight.

Writer’s note: I want to say thank you to Richard Zehnle from the AE911Truth Writing Team, who helped correcting English grammar and style.

---

<sup>94</sup> NIST NCSTAR 1-3C, page 228 (PDF-page 278)

NIST declared the scale observed on the sample from the crushed area as “similar in nature to those formed by ambient processes.” (NIST NCSTAR 1-3C, page 228, PDF-page 278)

<sup>95</sup> NIST NCSTAR 1-3C, page 226 (PDF-page 276) The lower part is almost undamaged. See NISTNCSTAR 1-3C, page 227 (PDF-page 277)

<sup>96</sup> NIST NCSTAR 1-3C, page 470 (PDF-page 184 in NISTNCSTAR1-3CAppxs.pdf)

## Debunking the Real 9/11 Myths: Why Popular Mechanics Can't Face up to Reality - Part 1

Written by Adam Taylor; Wednesday, 15 February 2012 20:41

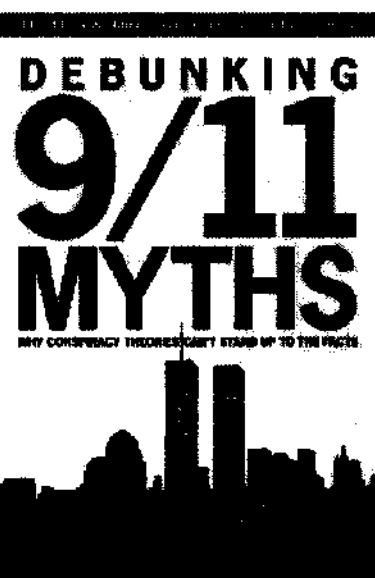
*Editor's note: This is Part 1 of an extensive report by researcher Adam Taylor that exposes the fallacies and flaws in the arguments made by Popular Mechanics in the latest edition of Debunking 9/11 Myths. We encourage you to submit your own reviews of the book at Amazon.com and other places where it is sold.*

### INTRODUCTION

A decade has passed since the tragic events of September 11, 2001, and many people feel that we have still not had a real investigation into what really happened that day. Many believe that the investigations into the destruction of the three WTC skyscrapers by the National Institute for Standards and Technology (NIST) were either fraudulent or incomplete, and have joined the 1600+ architects and engineers at AE911Truth in calling for a real, independent investigation into the attacks. However, Popular Mechanics (PM) has been the primary cheerleader in the mainstream media in defense of the NIST reports ever since its book, *Debunking 9/11 Myths: Why Conspiracy Theories Can't Stand Up To the Facts*, was published in 2006.

For the ten-year anniversary of 9/11, PM put out a second version of its book, which was updated in an attempt to dismiss new findings that corroborate the controlled demolition hypothesis. The main sections of the book that were revised are on the collapse of the Twin Towers and World Trade Center 7.

This report demonstrates that PM has still not adequately explained the numerous anomalies surrounding the collapse of these three buildings that prove they were destroyed with explosives.



*The revised version of Popular Mechanics' book Debunking 9/11 Myths continues to defend myths that are scientifically impossible*

*(Quotes from Popular Mechanics' book are shown in red and with page numbers.)*

### World Trade Center Towers 1 & 2

The introduction to PM's chapter on the collapse of the Twin Towers briefly discusses the main theory put forward by members of the 9/11 Truth movement regarding the Towers' destruction: "The buildings were brought down intentionally—not by hijacked airplanes, but by government-planted bombs or a controlled demolition" (pg. 28). PM then goes on to give a few examples of people promoting this theory. One of the people they cite is a Danish writer named Henrik Melvang, who, according to PM, "markets his book and video claiming the Apollo moon landings were a hoax" (pg. 28). This is obviously an attempt on PM's part to portray those who question the collapse of the Towers as conspiracy theorists who have irrational beliefs. PM also cites Morgan Reynolds, the former

chief economist at the U.S. Department of Labor during President George Bush's first term, as someone who believes that the Towers were destroyed through controlled demolition.

We must ask ourselves why PM would choose to cite these people as examples of those who question the collapse of the Towers. Why didn't they cite anyone with experience in the fields of engineering and building construction? According to PM, it's because the 9/11 Truth movement doesn't have any technical credentials. In their 2011 book, they state that:

Though Reynolds and a handful of other skeptics cite academic credentials to lend credence to their views, not one of the leading conspiracy theorists has a background in engineering, construction, or related fields. (pg. 28-29)



*The debate over the airplane crash at the Empire State Building is irrelevant because the design of the Twin Towers was far more robust than that of older high-rises*

This statement is by far one of the most remarkable passages in PM's book. One need only look at what most consider the lead organization in the 9/11truth community, Architects & Engineers for 9/11 Truth, to see that there are currently over 1600 professional architects and engineers with backgrounds in engineering, architecture and building construction who question the destruction of the three WTC high-rise buildings. How can PM possibly have omitted over a thousand experts who agree that the Twin Towers and WTC7 were brought down with explosives? In PM's entire 216 page book, there is not a single mention made of AE911Truth or its founder, architect Richard Gage, AIA.

When one looks back at their 2006 book, we can see that this exact same statement appears on the exact same pages.

This fact shows how PM has decided to structure their new book: i.e., update it only where it benefits them. As we will see, this tactic is used more than once in PM's grossly flawed book.

*Popular Mechanics did a poor job of updating their book, leaving in claims from their 2006 version (excerpt shown above) that no leaders of the 9/11 Truth movement have backgrounds in engineering. They completely ignore the hundreds of engineers at AE911Truth who have examined the WTC evidence and are demanding a real investigation*

### **1.1 The Empire State Building Accident**

PM discusses the incident in 1945 where a B-25 bomber lost in the fog crashed into the side of the Empire state building. They claim that "some conspiracy theorists point to [this incident] as proof that commercial planes hitting the World Trade Center could not bring down the towers" (pg. 29). To counter this assertion, PM discusses the construction of the Towers compared to the construction of the Empire State Building and how the Towers' structures "were in some ways more fragile" (pg. 30). They also quote structural engineer Jon Magnusson as saying that "These structures look massive, but they're mostly air. They *are* air, punctuated with thin layers of concrete and steel" (pg. 30). While it is true that the Towers were mostly empty space by volume, this is true of any large skyscraper. The idea that the Towers were in some way less structurally sound than the Empire State Building is

contradicted by a variety of technical sources, including this telegram written by Richard Roth, partner at Emery Roth & Sons, which was the architectural firm that designed the Twin Towers:

THE STRUCTURAL ANALYSIS CARRIED OUT BY THE FIRM OF WORTHINGTON, SKILLING, HELLE & JACKSON IS THE MOST COMPLETE AND DETAILED OF ANY EVER MADE FOR ANY BUILDING STRUCTURE. THE PRELIMINARY CALCULATIONS ALONE COVER 1,200 PAGES AND INVOLVE OVER 100 DETAILED DRAWINGS.

BECAUSE OF ITS CONFIGURATION, WHICH IS ESSENTIALLY THAT OF A STEEL BEAM 209' DEEP, **THE TOWERS ARE ACTUALLY FAR LESS DARING STRUCTURALLY THAN A CONVENTIONAL BUILDING SUCH AS THE EMPIRE STATE BUILDING** WHERE THE SPINE OR BRACED AREA OF THE BUILDING IS FAR SMALLER IN RELATION TO ITS HEIGHT.

**THE BUILDING AS DESIGNED IS SIXTEEN TIMES STIFFER THAN A CONVENTIONAL STRUCTURE.** THE DESIGN CONCEPT IS SO SOUND THAT THE STRUCTURAL ENGINEER HAS BEEN ABLE TO BE ULTRA-CONSERVATIVE IN HIS DESIGN WITHOUT ADVERSELY AFFECTING THE ECONOMICS OF THE STRUCTURE

OUT BY THE FIRM OF WORTHINGTON, SKILLING, HELLE & JACKSON IS THE MOST COMPLETE AND DETAILED OF ANY EVER MADE FOR ANY BUILDING STRUCTURE. THE PRELIMINARY CALCULATIONS ALONE COVER 1,200 PAGES AND INVOLVE OVER 100 DETAILED DRAWINGS.

BECAUSE OF ITS CONFIGURATION, WHICH IS ESSENTIALLY THAT OF A STEEL BEAM 209' DEEP, **THE TOWERS ARE ACTUALLY FAR LESS DARING STRUCTURALLY THAN A CONVENTIONAL BUILDING SUCH AS THE EMPIRE STATE BUILDING** WHERE THE SPINE OR BRACED AREA OF THE BUILDING IS FAR SMALLER IN RELATION TO ITS HEIGHT.

**THE BUILDING AS DESIGNED IS SIXTEEN TIMES STIFFER THAN A CONVENTIONAL STRUCTURE.** THE DESIGN CONCEPT IS SO SOUND THAT THE STRUCTURAL ENGINEER HAS BEEN ABLE TO BE ULTRA-CONSERVATIVE IN HIS DESIGN WITHOUT ADVERSELY AFFECTING THE ECONOMICS OF THE STRUCTURE.

It is quite apparent that the Towers were extremely well built, and may have been even more structurally sound than the Empire State Building. Even those supporting the official conspiracy theory praise the buildings' structural integrity as designed, such as Thomas Eager:

"The towers withstood the initial impact of the aircraft... the buildings had more than 1,000 times the mass of the aircraft... This ability to withstand the initial impact is hardly surprising." - Eager and Musso, JOM, 53 (12) (2001), pp. 8-11

PM next quotes WTC assistant structural engineer Leslie Robertson as stating that the Towers were only designed to take the impact of a Boeing 707, but did not take into consideration the fires that would be produced by the jet fuel.

After 9/11, Robertson stated, "I don't know if we considered the fire damage that would cause" (pg. 31). However, someone evidently did consider that problem, and that someone was John Skilling, the original WTC lead engineer. When interviewed in 1993, Skilling told the Seattle Times that:

"We looked at every possible thing we could think of that could happen to the buildings, even to the extent of an airplane hitting the side... Our analysis indicated the biggest problem would be the fact



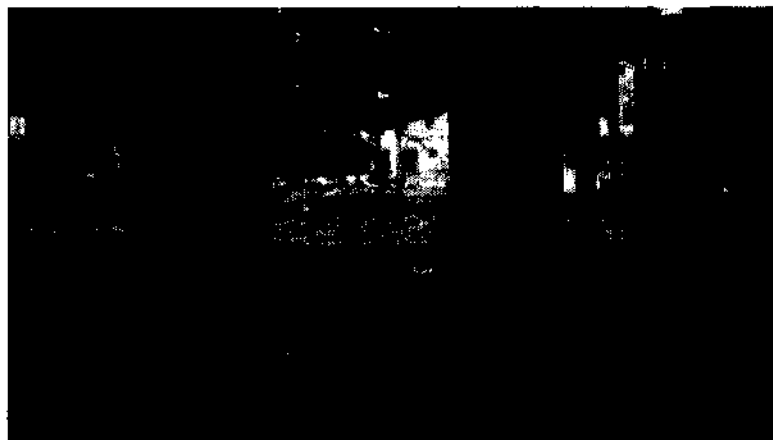
that all the fuel (from the airplane) would dump into the building. There would be a horrendous fire. A lot of people would be killed. [But] the building structure would still be there."<sup>ii</sup>

Although PM mentions John Skilling briefly in their book, they make no mention of this statement. Apparently, PM felt no need to quote the lead WTC engineer on his views about the structural stability of the Towers.

Although the B-25 bomber is not a very good comparison to the planes that hit the Towers, the evidence strongly indicates that the Towers should not have collapsed due to the plane impacts and the ensuing fires. PM quotes a few sources who stated after 9/11 that the Towers were doomed once the planes impacted the buildings, but virtually every engineering source that was quoted before 9/11 says the opposite.

## 1.2 Widespread Damage

The next section of PM's book deals mainly with the damage to the lobby floors of the Towers and how many in the 9/11 Truth movement have asserted that this is evidence of explosives being planted in the buildings. The argument PM puts forward is that the jet fuel from the planes traveled down through the elevator shafts and caused explosions that damaged the lobby.



*The walls and trees in the lobby of one of the Twin Towers show no evidence of being burned by a jet fuel fireball, which Popular Mechanics claims was the cause of an earlier explosion*

Although viewpoints differ in the 9/11 Truth movement<sup>iv</sup> regarding the cause of these explosions, some features of the lobby damage indicate that they were not due to a fireball explosion from the jet fuel. For example, the white marble walls show no signs of being exposed to fire, and the plants next to the blown out windows show no signs of burning either.

And at least one explosives expert has stated that he does not believe the damage was caused by the jet fuel traveling down the elevator shafts,



based on the appearance of the lobby.<sup>y</sup> Whether or not the lobby damage is indicative of explosives, however, is essentially irrelevant to the discussion of the Towers' demolitions, as the collapse sequence started above the plane impact zone, not at the lower levels. The lobby damage is not necessary to prove the Twin Towers were destroyed by controlled demolition, as there are far more obvious indicators of demolition that will be discussed later in this report. The fact that PM claims that the jet fuel travelled down the elevator shafts is actually more damaging to their case, as it shows that not all of the fuel from the planes contributed to the fires that allegedly brought the Towers down.

This section of PM's book also discusses the testimony of firefighter Louie Cacchioli, one of over one hundred first responders who said that there were bombs in the WTC. PM counters this by asserting that members of the 9/11 Truth movement have taken his quotes out of context. Though Cacchioli himself does not believe explosives were placed in the buildings, the numerous quotes from firefighters and first responders strongly indicate that explosives were placed in the buildings.

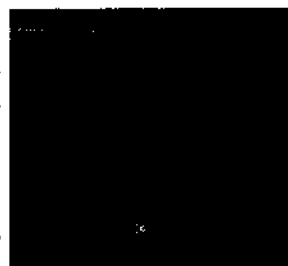
*In Part 2 of this monthly series, Taylor will refute the false explanations that Popular Mechanics has provided for the molten metal that was discovered at Ground Zero. Look for Part 2 in the March edition of the Blueprint newsletter.*

## Psychology Experts Speak Out: "Why is the 9/11 Evidence Difficult for Some to Accept?"

Thursday, 19 July 2012 18:04

It's often difficult for people who are aware of the evidence for the controlled demolition of the WTC skyscrapers to understand why so many Americans are unwilling to rationally discuss this vital information. For over ten years now, 9/11 Truth advocates have been trying to get relatives, friends, and strangers to listen to the undeniable facts that point to the need for a real 9/11 investigation. We often encounter emotional resistance, which poses the question: "Why is the evidence so difficult for so many people to accept?" In the new documentary, "9/11 Explosive Evidence -- Experts Speak Out," AE911Truth petition signers with psychological expertise step forward with answers.

Licensed clinical psychologist Robert Hopper, Ph.D., explains: "9/11 Truth challenges some of our most fundamental beliefs about our government and about our country. When beliefs are challenged or when two beliefs are inconsistent, cognitive dissonance is created. 9/11 Truth challenges [our] beliefs that our country protects and keeps us safe and that America is the 'good guy.' When this happens, fear and anxiety are created. In response, our psychological defenses kick in [to] protect us from these emotions. Denial, which is probably the most primitive psychological defense, is the one most likely to kick in when our beliefs are challenged."



*Psychologist Robert Hopper, Ph.D., suggests that fear and anxiety are common responses when dealing with the evidence presented by AE911Truth*



*Psychologist Fran Shure, M.A., has investigated the disturbing implications of 9/11 for many years, and provides insightful analysis in Experts Speak Out*

As underscored in the film, sometimes the expression of denial includes raw incredulity, as when people make statements like, "I refuse to believe," or "I don't want to know the truth." Others respond, "I'm not sure I want to know. If this is true, down would be up, up would be down, [and] my life would never be the same." Or, "I refuse to believe that many Americans could be that treasonous."

"Whenever we say, 'I refuse to believe,' we can be sure that the evidence that's coming our way is not bearable, and that it's conflicting with our worldview," observes Fran Shure, M.A., a 20-year licensed professional counselor and psychotherapist. As she thought about all of the most common "closed" responses to an invitation to engage with the 9/11 evidence, she realized that "what is common to every one of them is the emotion of fear. People are afraid of being ostracized, they're afraid of being alienated, they're afraid of being shunned. They're afraid of feeling helpless and vulnerable, and they're afraid that they won't be able to handle the feelings that are coming up. They're afraid of their lives being inconvenienced...of being confused... [and] of psychological deterioration. They're afraid of feeling helpless and vulnerable."

*"People are afraid of being ostracized, they're afraid of being alienated, they're afraid of being shunned. They're afraid of feeling helpless and vulnerable, and they're afraid that they won't be able to handle the feelings that are coming up"*

To begin to accept the possibility that other groups were involved in 9/11 "is like opening Pandora's box," states Robert Hopper. "If you open the lid [and] peek in a little bit, it's going to challenge some of your fundamental beliefs about the world."

Most people do not welcome such dramatic challenges to their worldview. "If we can think of our worldview as being sort of our mental and emotional home, I think all of us will do just about anything to defend our homes [and] to defend our families," says Dorothy Lorig, M.A., a counselor with a 16-year practice in re-evaluation counseling.

Lorig saw that within herself when her brother initially tried to talk to her about 9/11 Truth. Her response: "Don't mess with me. Don't mess with my home, don't mess with my comfort [level]." But about a week later she read a "well-researched article" by Dr. David Ray Griffin, Ph.D., on the evidence indicating why the official account of 9/11 cannot be true. What was Lorig's reaction?

*"I was in my office at the time. I sat there and felt my stomach churning. I thought maybe I was going to be sick. I leaped out of my chair, ran out the door, and took a long walk around the block – around several blocks – and just broke down. I understand now. What was happening was my worldview about my government being in some way my protector – almost like a parent – had been dashed, and it was like being cast out into the wilderness. I think [that this] is the closest way to describe that feeling. I sobbed and I sobbed...and I knew, at some point during the walk, that I was going to have to become active in educating other people about this. For me to retain any sense of integrity, I was going to have to take some action. I couldn't just let something like this go."*



*It was difficult for psychologist Dorothy Lorig to come to terms with 9/11 Truth, but when she did, she made the decision to take action by educating others*

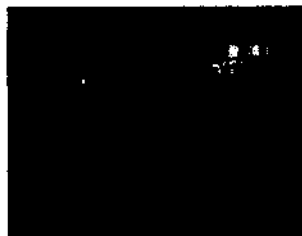
Many 9/11 activists know David Ray Griffin as the pre-eminent author on 9/11, having written ten books on the topic and edited others. Griffin is Professor of Philosophy, Emeritus, at the Claremont School of Theology. He analyzes people's varied reactions to 9/11 Truth as follows: "You have empirical people who will simply say, 'Look at the evidence; if it's convincing, I will change my mind.' Other people have a paradigm. They say, 'This is the way the world works, and I'm convinced this is the right way.... 9/11 [Truth] doesn't fit into that paradigm, so I don't need to look at the evidence..."

Griffin also described a third type of people who engage in what he calls "wishful and fearful thinking.... [T]hey simply will not believe something that they fear to be the truth. I've found that may be the most powerful factor [for] people [who reject] 9/11 Truth and not even entertain the evidence."

Part of the reason why people are so fearful is the nature of the event itself. "The horrors of what happened on 9/11 were televised all over the world, and they were in fact televised live," explains Marti Hopper, Ph.D., a licensed clinical psychologist and trauma victim specialist. "We witnessed the

deaths of almost 3,000 of our fellow Americans. We know this had a very severe and traumatic impact on a large majority of the population.”

*“ We were confident [before 9/11], we felt secure, and all of a sudden that security collapsed. People started to be fearful. People didn’t know what to think, and it’s a very, very uncomfortable state to be in.”*



*As a trauma victim specialist, Danielle Duperret, Ph.D., provides a unique perspective on the dramatic impact that 9/11 had on the American psyche*

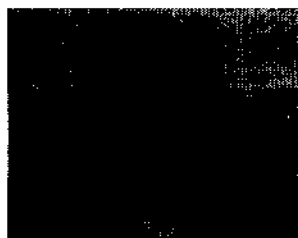
Trauma specialist Danielle Duperret, Ph.D., concurs with Hopper. “We were confident [before 9/11], we felt secure, and all of a sudden that security collapsed,” she said. People started to be fearful. People didn’t know what to think, and it’s a very, very uncomfortable state to be in. Just like when a computer is overloaded, our minds get overloaded, we can’t handle it anymore, and we shut down. It’s easier to deny it and move on with our lives.”

“What some of us will tend to do,” Shure adds, “is deny the evidence that’s coming our way and stick to the original story – the official story – and to try to regain our equilibrium in that way.”

Shure offers a better alternative: “Another thing we can do is decide to look at the conflicting evidence, be sincere, be open-minded, look at both sides of the issue, and then make up our own minds about what reality is.”

However, that can be a difficult task for those who see America as infallible. As psychologist Robert Griffin notes, “To be the kind of country that we think we are, we have to face some of the things that are *not* as we think they are. Thinking that we’re above such things – that it could happen in other countries but it couldn’t happen here – that’s a lack of humility and excessive pride. Not being able to see our dark side or our weaknesses is the most dangerous thing.”

“It doesn’t work to challenge people’s beliefs or merely tell them, ‘I know the truth about 9/11.’ But a good way is to ask open-ended questions and lead them into a dialogue and a discussion about it [with] gentle dialogue and gentle questioning.”



*Psychologist Robert Griffin examines the emotional problems people have with accepting the truth of 9/11 and the solutions activists can use to overcome these issues*

David Ray Griffin (no relation to Robert Griffin) adds, “The observation that pride is one of the basic human flaws is absolutely correct. A feature of American history that makes us particularly liable to this pride is this notion called ‘exceptionalism,’ that America is the exceptional nation...that our leaders are free from the sins that other nations have been troubled by. This has made 9/11 [Truth] particularly difficult for Americans [to understand].”

John Freedom, a personal development counselor with masters-level certification, observes that “It doesn’t work to challenge people’s beliefs or merely tell them, ‘I know the truth about 9/11.’ But a good way is to ask open-ended questions and lead them into a dialogue and a discussion about it [with] gentle dialogue and gentle questioning.”

“Healing comes through facing the truth, experiencing it, allowing the feelings to come in.”—*William Woodward, Ph.D.*



Robert Hopper agrees, saying, “The first thing is to meet people where they’re at.”

Experimental psychology professor William Woodward, Ph.D., stresses the need “to work together to expose what happened regardless of where the evidence takes us. That’s what we expect in our state government [and] law enforcement. I think that, by putting science together with the law, we will have a psychological healing around the ‘impossible’ cognition that has been produced [about 9/11].”

*Philosophy professor and theologian David Ray Griffin, Ph.D., speaks from his experience as one of the foremost experts on 9/11*

In contrast to George W. Bush’s infamous warning to never question the official story of 9/11, Robert Griffin states, “We need to understand that questioning is patriotic. Questioning is what we’re supposed to do as citizens. That’s our duty.”

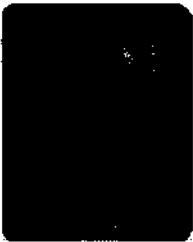
In fact, as Woodward advises, “Healing comes through *facing the truth*, experiencing it, allowing the feelings to come in. So if there are feelings of fear that perhaps these events were caused by something that we haven’t thought about yet – dark elements within our society for example – we’ll let that come in and explore it. Let the light shine on whatever happened. This will be the most healing process.” Woodward also explains that “reconciliation through the truth is... a deep path to psychological recovery from the myths and lies around which this historic event has been cloaked in the official view.”

Reflecting the view of many 9/11 Truth advocates, John Freedom came to the following conclusion: “One thing that has become important for me personally is to educate myself...to take responsibility. There’s that wonderful quote from Mahatma Gandhi where he said that ‘We must be the change that we wish to see in the world.’”

Clearly, Gandhi’s pragmatic philosophy is being reflected here at AE911Truth. If you haven’t done so already, get your copy of 9/11: Explosive Evidence – Experts Speak Out and take action!

# Why Do Good People Become Silent-or Worse-About 9/11?

Written by Frances T. Shure, Sunday, 24 November 2013 03:51



Editor's Note: Frances Shure, M.A., L.P.C., has performed an in-depth analysis addressing a key issue of our time: "Why Do Good People Become Silent—or Worse—About 9/11?" The resulting essay, to be presented here as a series, is comprised of a synthesis of reports on academic research as well as clinical observations.

Ms. Shure's analysis begins with recognition of the observation made by the psychology professionals interviewed in the documentary "9/11: Explosive Evidence – Experts Speak Out" by Architects and Engineers for 9/11 Truth, who cite our human tendencies toward denial in order to avoid the discomfort of cognitive dissonance. Indeed, resistance to information that substantially challenges our worldview is the rule rather than the exception, Ms. Shure explains. This is so because fear is the emotion that underlies most of the negative reactions toward 9/11 skeptics' information. Ms. Shure addresses the many types of fear that are involved, and how they tie into the "sacred myth" of American exceptionalism.

Through the lenses of anthropology and social psychology, Ms. Shure focuses on diffusion of innovations; obeying and believing authority; doublethink; cognitive dissonance; conformity; groupthink; terror management theory; systems justification theory; signal detection theory; and prior knowledge of state crimes against democracy and deep politics. Through the lens of clinical psychology, Ms. Shure explores viewpoints described in the sections on learned helplessness; the abuse syndrome; dissociation; and excessive identification with the United States government. Two sections on brain research provide astonishing insights into our human nature.

Finally, the sections entitled "American Exceptionalism," "Governmental Manipulation and the 'Big Lie,'" and "Those Who Lack Conscience and Empathy" contain valuable information from an amalgam of the disciplines of history, social psychology, clinical psychology, and brain research. The final sections address how we can communicate about 9/11 evidence more effectively, and our human need for awareness and healing. Ms. Shure concludes by quoting poet Langston Hughes in an inspiring epilogue, which asks: "Is America Possible?"

This month's installment begins with Ms. Shure's Preface and Introduction. Succeeding segments will continue the journey that explores contributions of Western psychology in answering the pressing question, "Why Do Good People Become Silent—or Worse—about 9/11?"

## Preface

The following essay is not meant to persuade anyone of the theory that elements within our government were responsible for the devastating attacks of September 11, 2001. Rather, this paper is



addressed primarily to the 45% of Americans<sup>1</sup>—and those people in other parts of the world—who already believe a new investigation is needed, as well as those who simply have had their doubts about the official account of 9/11 but have not explored the issue further. This paper is also addressed to psychology professionals and social scientists who may wish to consider the question in the title in greater depth.

Furthermore, this essay should be helpful to anyone who encounters resistance to any paradigm-shifting idea about which he or she may be communicating, since the same dynamics and research would apply in all such cases.

This work was not crafted entirely alone. I am grateful to the Writing Team of Architects and Engineers for 9/11 Truth who suggested I write an article in the first place—thus the seed was planted. Once the seed began germinating, it was nurtured by substantial suggestions from Marti Hopper, Ph.D., Sheila Fabricant Linn, M.Div., Dennis Linn, M.Div., Daniel K. Sage, Ph.D., Dorothy Lorig, M.A., Earl Staelin, J.D., Joseph Lam, Gregg Roberts, John Freedom, C.E.H.P., Danielle Duperret, Ph.D., Paul Rea, Ph.D., Tim Gale, Sonia Skakich-Scrima, M.A., and by the care taken by proofreaders Nancy Hall and Dennis McMahon. I am profoundly indebted and grateful for their enthusiastic help.

In addition, this work could not have been written without contributions from the people named and quoted in the document. I have drawn from wherever I found research, credible observations, or inspiration that seemed to apply. I hope others will become inspired to add to this synthesis of research and observation to further help answer the question, “Why Do Good People Become Silent—or Worse—About 9/11?”

## **Introduction**

“If what you are saying is true, I don’t want to know!” exclaimed a young male visitor at our 9/11 Truth booth at the Denver People’s Fair. He was referring to the evidence of controlled demolition of the three World Trade Center (WTC) skyscrapers on September 11, 2001.

“Why?” I asked.

“Because if what you are saying is true, I would become very negative. Psychologically, I would go downhill.”

With gratitude, I responded “Thank you!”

Surprised, he asked, “Why are you thanking me?”

“Because it’s rare to hear such raw truth. Thank you for being so honest.”

Softened by our exchange, the young man chatted with me a while longer before taking his leave. I have never forgotten him; he has likely never forgotten me. We both felt it. Paradoxically, deep truth had been shared.

We who work to educate the public about 9/11, and about false flag operations,<sup>2</sup> are puzzled by the often forceful resistance from our listeners. Yet, many of us in the 9/11 Truth Movement also once vigorously resisted this challenging evidence. We have our own stories to document this. What drives those negative reactions?

Before continuing, I would like to clarify that people who continue to resist the evidence that indicates 9/11 was a false flag operation are no more mentally healthy or unhealthy than those of us who question the official account. Both groups consist of folks who span the mental health spectrum.

So, there is no need to pathologize those who currently do not see what is now so clear to us, just as those of us in the 9/11 Truth Movement should not be dismissed and maligned as “conspiracy theorists”—the latter being an obvious defense and a not so obvious offense.<sup>3</sup>

The psychology professionals interviewed in the documentary 9/11: Explosive Evidence - Experts Speak Out by Architects and Engineers for 9/11 Truth clearly speak about our human tendencies toward denial in order to avoid the discomfort of cognitive dissonance. They speak compassionately about all of us. There is no sophisticated name-calling (diagnosing) as can sometimes be popular among the members of this profession. This is indeed refreshing.

In this spirit, and in the spirit of beginning a conversation—for we humans are complicated creatures—I will share my thinking as to why some of us defend ourselves from information that is troubling.

History tells us that to determine reality, even scientists, whom we stereotypically view as objectively and open-mindedly looking at data, rather than at belief, often vigorously resist paradigm shifts. Gregor Mendel's experiments and resulting theory of genetic inheritance, for example, was resisted by scientists from the time of its announcement in 1865, and was only rediscovered in 1900 by three other European scientists. Resistance to information that substantially challenges our worldview, we find, is the rule rather than the exception.<sup>4</sup> Fortunately, change does occur, consensus reality does shift, sometimes rapidly, sometimes excruciatingly slowly.

To reiterate what I said in the film 9/11: Experts Speak Out, fear is the emotion that underlies most of the negative reactions toward 9/11 skeptics' information: fear of receiving information that will turn our world upside down, fear of being overwhelmed by our own emotions, fear of psychological deterioration, fear our life will have to change, fear we'll discover that the world is not a safe place, fear that our reputation will be tarnished or that we'll lose our jobs, fear of being shunned or banished by friends and family, and fear of looking like a fool because we bought the official account so thoroughly.

This last reason may be true especially for intellectuals who often identify strongly with their intellect. None of us, however, like to feel bamboozled, as this often threatens our very identity and brings us very close to feeling betrayed. Carl Sagan knew this when he said,

One of the saddest lessons of history is this: If we've been bamboozled long enough, we tend to reject any evidence of the bamboozle. We're no longer interested in finding out the truth. The bamboozle has

captured us. It's simply too painful to acknowledge, even to ourselves, that we've been taken. Once you give a charlatan power over you, you almost never get it back.<sup>5</sup>

Social psychologist and scholar Laurie Manwell tells us that one of her professors said that he could sum up human behavior with this statement: "People liked to be liked, they like to be right, and they like to be free—in that order." Thus, most people will give up their need to be right or free if their need to be liked is threatened.<sup>6</sup> Why is this?

The fear of banishment is surely among the greatest fears we humans harbor, albeit often unconsciously.<sup>7</sup> We are social creatures. We need others in order to survive, and we need to have a sense of belonging. To have some sense of wholeness and well-being, we need to feel connected to others, to love and to be loved. This is the reason that ridicule and shaming are such potent strategies used—consciously or unconsciously—to censor those with views that diverge from a culture's sacred mythology.

A "sacred myth" is a special story, found in every culture, whether true, untrue, or partially true, that tells us who we are and why we are doing what we are doing.<sup>8</sup>

What is our American sacred myth? It goes something like this:

We are a truly exceptional nation with exceptional forefathers. We rebelled against tyranny and established a democratic republic, a model that the world has largely accepted and imitated. Our country is the purveyor of democracy and freedom around the world and our interventions in other countries are benevolent actions. On September 11, 2001, we were caught off-guard when al Qaeda terrorists in a sneak attack, similar to that at Pearl Harbor, succeeded in flying commercial airplanes into the World Trade Center and the Pentagon, the most significant wound to our homeland to date. However, true to the American spirit, we immediately rose to the challenge to militarily smite the world of terrorists who hate us because of our freedoms. This is why we have an unending Global War on Terror.

If we can set aside this belief in our sacred myth, look at the evidence, and recognize that 9/11 was a false flag operation, then we may also fear severe repercussions from corrupt authorities if we should speak out. As one person told me, "I appreciate everything you all are doing with this 9/11 issue, but I hope you understand, I have children; I can't get involved with this."

Fear is an integral part of the human condition; and yet, if we are committed to psycho-spiritual growth, we do not let fear dictate what we do—or do not do. We can be aware of the fear while not letting it rule our lives.

Most of us were traumatized<sup>9</sup> by watching the horrifying destruction of the Twin Towers, knowing there were thousands of our fellow humans beings killed in that moment. Some of us were again deeply shaken when we discovered evidence indicating that 9/11 might be a false flag operation.

Why do some of us embrace the evidence and its implications and get active, while others feel powerless in the face of this evidence or react with apathy? And why do others get defensive and stay defensive—sometimes vehemently? Why, indeed, upon hearing the evidence that contradicts the official account of 9/11, do good people become silent, or worse?

What is the difference? How, for example, can some people watch World Trade Center Building 7 (WTC7)10 implode and collapse into its own footprint and not see what is right in front of them—even when they know about its free fall acceleration and the other characteristics of controlled demolition? These people may feel compelled to intensify their resistance with intellectually contorted measures to convince themselves and others that this was not controlled demolition. Others will content themselves with shaming anyone who wants to investigate the 9/11 evidence that contradicts the official sacred myth.

There is a worldview that is being seriously challenged. What is it? In essence, it was described well by words from a journalist whom I met at a street action: “I am aware that our government does bad things, but not this! Not those towers! They would not be that evil.”

So we assume our government—which is supposed to protect us but sometimes does bad things—would never commit acts this heinous. A man said to me during a public presentation, “I find your statement that our government orchestrated 9/11 very disturbing and offensive.”

“I believe I said the evidence trail leads to elements within our government, not the government,” I replied.

He retorted, with great seriousness, “It makes no difference. There is no way you can state this that is going to make me feel any better!”

Many of us unconsciously relate to our governmental leaders as parental figures on whom we project our (often unmet) needs for a protective parent. We even agree culturally to the term “our founding fathers.”

The disciplines of Western psychology and anthropology have much to offer toward understanding human behavior, but we must remember that these disciplines, as impressive as they are, are ultimately disciplines that belong to our Western culture only. In the East and in some tribal societies, for example, people may use the philosophy of the transmigration of souls to explain human behavior; and the Sufis, the mystical branch of Islam, use the nine personality types of the Enneagram to explain our disparate human propensities.

Remember the proverbial five blind men, each touching one part of an elephant? Each man draws a conclusion as to what the object is, depending on which part he is touching. The result? Five partial and laughably inaccurate descriptions of reality.

The more lenses we look through, therefore, the greater is our capacity to see a clearer—a more dimensional—picture of our human tendencies. Nonetheless, within the overlapping viewpoints of the rich disciplines of Western psychology, anthropology, brain research, and history, we can find several

lenses that shed much light on the conundrum of why information that contradicts our worldview is so difficult for us to receive.

Through the lenses of anthropology and social psychology we will find helpful information in the sections below entitled Diffusion of Innovations; Obeying and Believing Authority; Doublethink; Cognitive Dissonance; Conformity; Groupthink; Terror Management Theory; Systems Justification Theory; Signal Detection Theory; and Prior Knowledge of State Crimes Against Democracy and Deep Politics.

Through the lens of clinical psychology we will explore viewpoints described in the sections on Learned Helplessness; The Abuse Syndrome; Dissociation; and Excessive Identification with the U.S.A.

The two sections on Brain Research provide us with astonishing insights into our human nature.

Finally, the sections entitled American Exceptionalism; Governmental Manipulation and the Big Lie; and Those Who Lack Conscience and Empathy, contain valuable information from an amalgam of the disciplines of history, social psychology, clinical psychology, and brain research.

Let me emphasize that this paper will be a synthesis of reports on academic research as well as clinical observations. None of the sections will fall neatly into one category or another, but they will overlap each other, as any rich and complicated subject will tend to do.

Let's begin our journey with an anthropological study...

## **The 9/11 Truth Movement: The Top Conspiracy Theory, a Decade Later**

By Dave Thomas in the *Skeptical Inquirer* Volume 35.4, July/August 2011

[http://www.csicop.org/si/show/the\\_9\\_11\\_truth\\_movement\\_the\\_top\\_conspiracy\\_theory\\_a\\_decade\\_later](http://www.csicop.org/si/show/the_9_11_truth_movement_the_top_conspiracy_theory_a_decade_later)

We are familiar with Dave Thomas and his one-sided skepticism. He uses the term "conspiracy theory" as a pejorative — despite believing and staunchly defending the *official* conspiracy theory. This indicates that he does not know what the legal term "conspiracy" means. Thomas uses straw man arguments. As we know, a straw man argument exaggerates and misrepresents an opponent's argument to make it easier to attack.

— **Claim #1: "The Twin Towers collapsed at free-fall accelerations through the path of greatest resistance."**

— **AE911Truth does not make this claim. David Chandler measured the fall of the North Tower for the four seconds that it can be seen and it fell at about 64% of free fall acceleration. Thomas admits that AE911Truth says *nearly* free-fall acceleration.**

\* \* \* \* \*

— "... Intense fires (started by jet fuel and fed by office contents and high winds) . . ."

— False. There were no high winds. Just a breeze.

\* \* \* \* \*

— "... eventually caused floor trusses to sag, pulling the perimeter walls inward until they finally snapped."

— Steel does not "snap" like twigs. The exterior columns were sections of three columns wide and three stories tall, staggered like bricks so that the splices of adjoining sections were on different floors. The splices could snap, but the other two sections would just bend, not snap.

\* \* \* \* \*

— "At this instant, the entire upper section of each tower fell the height of one floor, . . ."

— For the upper portion to "fall" the height of one floor, all the remaining core columns and all the *undamaged* columns on the east and west sides, including all four corners, would have to more than bend and "snap" at the same time — they would have to instantly disappear before bending at all.

\* \* \* \* \*

— "... Initiating an inevitable, progressive, and utterly catastrophic collapse of each of the structures."

— That's what NIST claims, but "inevitable" is a baseless assumption. Furthermore, the collapse did not start on the 95th floor, where *some* of the exterior columns bowed inward a maximum 55 inches.

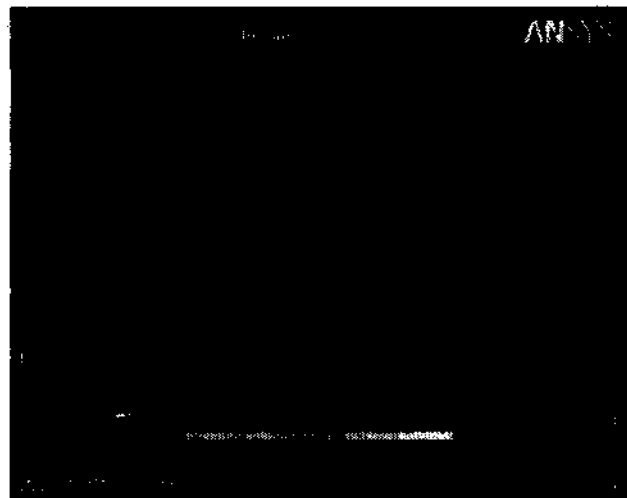


Figure 7-32. Inward displacement of the WTC 1 south wall at 100 ft. of the Case B temperatures with floor disconnections and 6 kip pull-in forces over five floors.

Rather, the collapse began on the 98th floor, above where the plane hit, so there was no dislodging of fireproofing. (See NIST's NCSTAR 1-6, p. 163 [PDF p. 245].)



\*\*\*\*\*

- "Truthers then insist that free fall acceleration indicates a complete lack of resistance, proving that the structures were demolished with explosives."
- This is true in the case of WTC 7, which *did* fall at free fall acceleration for about 81 feet in some 2.25 seconds.

\*\*\*\*\*

- "How *could* the buildings fall so quickly? It's been explained very well in the technical literature by Northwestern's Zdenek Bazant, PhD."
- Zdeněk Bažant published his theory two days after 9/11/01, without any data whatsoever. Why the rush to judgment? He has since updated his theory several times.

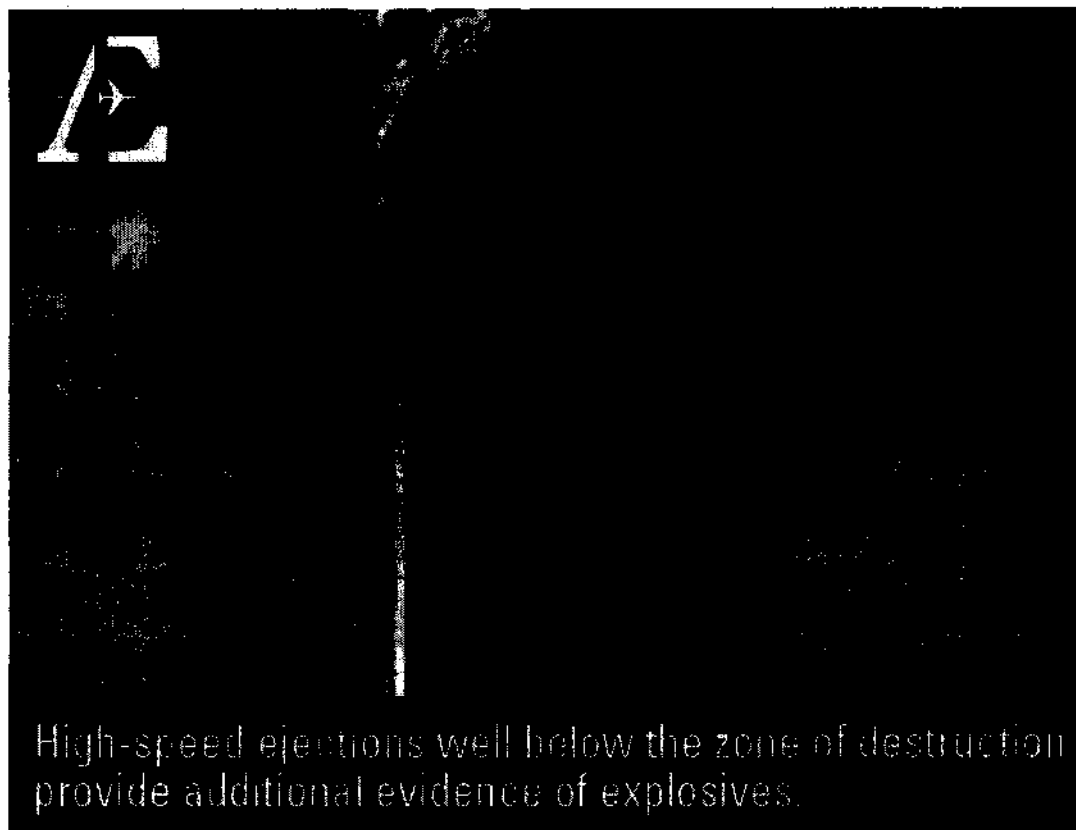
There are many problems with his theory, but the most glaring is the requirement that the upper portion fall at free-fall acceleration for that first story. That would require explosives to remove all the supporting structure. Bending steel columns requires energy, which precludes free fall. So his theory is actually a confirmation of controlled demolition.

\*\*\*\*\*

- "... over 420 billion joules of energy, or the equivalent of 100 tons of TNT per tower."
- Others have refuted Thomas's assumptions of the mass and the total potential energy.

\*\*\*\*\*

- "Truthers often compare such expulsions of air and debris, visible several floors below the collapse fronts, to 'squibs,' explosive devices often used in demolitions. However, they are readily explained by pressure changes as the towers, acting like a gigantic bicycle pump being compressed, collapsed."
- The squibs are sometimes 30 floors below the "collapse." Falling debris is chaotic and not airtight. That is; it's not like a piston in a cylinder. It is not solid, so it will allow air to pass through it rather than build up pressure below. There was no possibility of air pressure buildup 30 floors below. The bicycle pump analogy is an absurd and impossible comparison. Furthermore, there was a lot of solid matter in the squibs; air pressure cannot account for that.



- "The Twin Towers used a 'tube within a tube' architectural design."
- False. The core area was a grid of 47 columns all tied together with girders.

\* \* \* \* \*

- "When the towers began to collapse, large parts of the inner cores (called 'the Spires' in 9/11 Truth circles) were actually left standing, briefly, before they, too, toppled over."
- False. They did not "topple over." They fell straight down, which means that something *removed* the bottom portion.

\* \* \* \* \*

- "Between the outer perimeter and the Inner core, the weight of the upper sections plowed through one floor after another, breaking the floor connection brackets and support columns, pulverizing concrete decks, and gaining momentum and mass with each additional floor failure."
- Other qualified engineers and physicists have argued that there was not enough kinetic energy to pulverize the concrete to a fine powder and do all the other damage.

= = = = =

- **Claim #2: "Nano-thermite and military-grade explosives were found in dust from the towers. Tons of melted steel were found in tower debris."**
- **Claim #2 is incorrect. Nano-thermite, a military-grade explosive, was found in dust from the towers.**

\* \* \* \* \*

- ". . . (the characteristic "boom-boom-boom-boom" sounds and the flashes of high explosives) were completely absent in Manhattan on the morning of September 11, 2001."
- False. There were over 100 first responders and dozens of other witnesses who heard explosions and saw flashes of light.

Watch <https://www.youtube.com/watch?v=cZ4dVo5OgYg>

Watch <https://www.youtube.com/watch?v=wUXGhLrDqb0>

\* \* \* \* \*

- "Richard Gage insists that high explosives *must* have been used to bring down the Twin Towers, as they say this is the only process that can possibly explain the 'ejection of debris hundreds of feet from the towers.' However, they simultaneously insist that thermite or a derivative (thermate, nanothermite, etc.) was used *instead*, so as to topple the towers *quietly*."
- This is a straw man argument. AE911Truth says that a combination of nano-thermite, thermate, *and* explosives were probably used.

\* \* \* \* \*

- "Thermite is simply not practical for carrying out a controlled demolition."
- Uninformed and wrong. Here is a patent issued in 1994 for a nano-thermite demolition device: "A plasma arc can be employed to demolish a concrete structure at a high efficiency, while preventing a secondary problem due to noise, flying dust and chips, and the like, . . . directing the plasma arc at the surface of the concrete structure, and controlling the rate of supply of the thermite powder": <http://www.google.com/patents/US5532449>

\* \* \* \* \*

- ". . . unfortunately, with no chain of custody for the dust."
- False. Harrit et al. *did* establish a legal chain of custody.

\* \* \* \* \*

- "However, the presence of rust and aluminum does not prove the use of thermite, because Iron oxide and aluminum are found in *many* common items that existed in the towers."
- Another straw man. It wasn't *just* the presence of iron oxide and aluminum; it was nano particles of these elements of uniform size, intimately mixed and formed into red/gray chips. This could not possibly happen during the collapse, as Thomas suggests. In fact, the idea is so preposterous that anyone suggesting that this could happen loses all credibility.

\* \* \* \* \*

— "... the supposed thermite material showed results at about 450 degrees C *below* the temperature at which normal thermite reacts."

— That's because it wasn't regular thermite. It was nano-thermite, mixed with organic material. When the red/gray chips ignited at about 450 degrees C, they produced iron spheres, which proves that there was a thermite reaction.

Read [http://www2.ae911truth.org/downloads/Full\\_Thermite\\_paper.pdf](http://www2.ae911truth.org/downloads/Full_Thermite_paper.pdf).

\* \* \* \* \*

— "... the scan of the red side of the 'thermitic material' of Harrit/Jones is a dead-on match to material Jones himself identified as 'WTC Steel Primer Paint' in his Hard Evidence Down Under Tour in November of 2009."

Source: <http://www.international skeptics.com/forums/showpost.php?p=6959549>

— The video is no longer available, so it cannot be evaluated. From the nano-thermite paper: "Red/gray chips were soaked in methyl ethyl ketone (MEK) for 55 hours with frequent agitation and subsequently dried in air over several days. The chips showed significant swelling of the red layer, but with no apparent dissolution. In marked contrast, paint chips softened and partly dissolved when similarly soaked in MEK."

In other words, they were different.

\* \* \* \* \*

— "Suggesting that the samples show partially reacted thermite is preposterous."

— They didn't simply "suggest." They showed pictures of the spheres that they had analyzed and found to be iron.

\* \* \* \* \*

— "... the editor-in-chief of the *Bentham Journal* that featured Jones's article, Marie-Paule Pileni, resigned in protest."

— The reference Thomas makes above is to this:

\* \* \* \* \*

— "The editor of the *Open Chemical Physics Journal*, Professor Marie Paule Pileni, said that the article is '**not about physical chemistry or chemical physics**' and that '**the topic is outside her expertise**.'"

— Both of the above statements are false. A thermite reaction involves chemistry and physics. Marie-Paule Pileni is a chemistry professor with a **specialty in nanomaterials** at the renowned Université Pierre et Marie Curie in France.

See <http://screwloosechange.blogspot.com/2009/04/bentham-editor-resigns-over-steven.html>.

\* \* \* \* \*

— "Thermite demolition should have created copious pools of melted steel at Ground Zero, but nothing remotely like this was ever found."

— False. Numerous structural engineers, clean-up specialists, firefighters, and others describe seeing molten steel.

\* \* \* \* \*

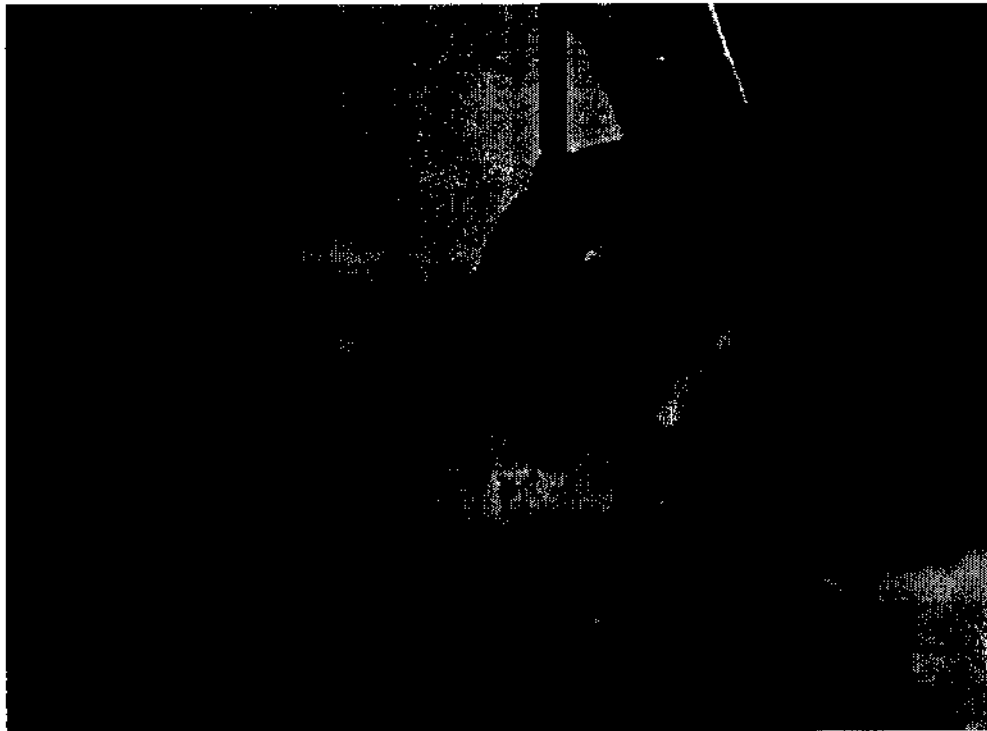
— "Truthers say iron microspheres found in the rubble indicate thermite; since hot fires and spot-welding do produce very tiny spheres of iron, though, these 'microspheres' are not unexpected."

— These are alternatives that "skeptics" cite, but they could not produce the amount of iron spheres found in the dust (5.87% by weight). The RJ Lee group studied the dust from the WTC and determined that "iron melted during the WTC event, producing spherical metallic particles." That requires 2,800°F, a thousand degrees above what jet fuel or office fires can attain. They also determined that lead vaporized during the collapse (3,182°F).

See [http://911encyclopedia.com/wiki/Index.php/RJ\\_Lee\\_World\\_Trade\\_Center\\_Dust\\_Study](http://911encyclopedia.com/wiki/Index.php/RJ_Lee_World_Trade_Center_Dust_Study)

\* \* \* \* \*

- "Pictures of cranes holding red-hot materials in the rubble are said to show molten steel. Had this been the case, however, the crane rigs would have immediately seized up."
- Not so. Heavy equipment is not delicate. Here is a photo of a crab-claw picking up some semi-solid molten metal dripping from the bottom:



Mark Loizeaux, founder of Controlled Demolition Inc., said, "There are both video tape and still photos of the molten steel being "dipped" out by the buckets of excavators."

\* \* \* \* \*

- "No reports of 'molten steel' in the tower basements have ever been credibly verified."
- That's an excuse to ignore all the credible reports by structural engineers, demolition experts, clean-up specialists, firefighters, and others. It's extremely unlikely that they're all wrong.

\* \* \* \* \*

- "... sulfur, released from burned drywall, corroded the steel as it stewed in the pile for weeks."
- This is another absurd, baseless assumption, with no precedent or science to back it up. The sulfur in drywall is locked up in a chemical bond that is not broken in a fire. Drywall is used for fireproofing, but it could not be if the sulfur were released in a fire and thus adding to the intensity of a fire.

= = = = =

**— Claim #3: "Tower 7, which wasn't hit by a plane, collapsed neatly into its own footprint."**

- "In particular, Truthers point to a brief period of freefall (2.25 seconds) that was confirmed by NIST in its WTC 7 final report (Sunder 2008; NIST 2010) as proving that the building was purposely imploded. However, WTC 7, too, fails to prove 9/11 was an 'inside job' . . . ."

— Note that Thomas does not dispute that 2.25 seconds of free fall proves that WTC was a controlled demolition. He just skips over that little detail and says that it doesn't prove 9/11 was an "inside job."

\* \* \* \* \*

- "What is often conveniently left out of the story are actual reports from NYFD firefighters at the scene, which describe huge, raging, unfought fires on many floors at once."
- Using the photos and videos, NIST confirms that they were *not* huge raging fires; they were normal office fires.

\*\*\*\*\*

- "... and visible deformations and creaking. . ."
- The supposed "bulge" in the southwest corner — where Floor 10 to Floor 13 was apparently missing due to debris damage — even if it *did* exist, had nothing to do with the "collapse" that started at the other end of the building.

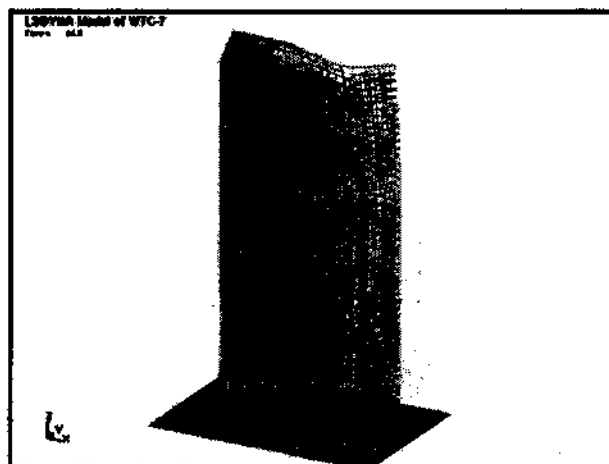


\*\*\*\*\*

- "NIST determined that this column was crucial to the building and could even be considered a design flaw. Its failure would have collapsed the building even without the other structural damage from WTC 1's collapse and the fires."
- That is what NIST says, but it's a bit farfetched to claim that the failure of a single column could cause a modern skyscraper to collapse completely in a matter of seconds.

\*\*\*\*\*

- "NIST found the collapse occurred in *three* stages. The first stage, which lasted 1.75 seconds, is when the fifty-eight perimeter columns were buckled; during this interval, the rooftop actually fell only about seven feet. In the second stage, which lasted 2.25 seconds, the already-buckled columns provided negligible support, and the north face of the structure free-fell about eight stories."
- NIST used a camera looking up at the building, so the inward movement of the north wall would register as a downward movement using the method of counting light-colored pixels to determine the skyline. The point NIST chose, a little to the west of center, is where its computer model has an inward bow, so NIST had to have known that its claim of a seven-foot drop was fraudulent.



The video cameras that aim roughly level with the roofline show a slight downward movement of all but the northwest corner, just before the entire roofline goes into free fall. There was no bending of the exterior columns on the west end (right side) of the building before onset of free fall.



The NIST model (below) shows the exterior framework still bending after about 34 feet of descent, *well* into the free-fall portion of the collapse. In free fall, all the energy is being converted into motion, but bending steel requires energy, so the NIST model is *not* falling at free fall.

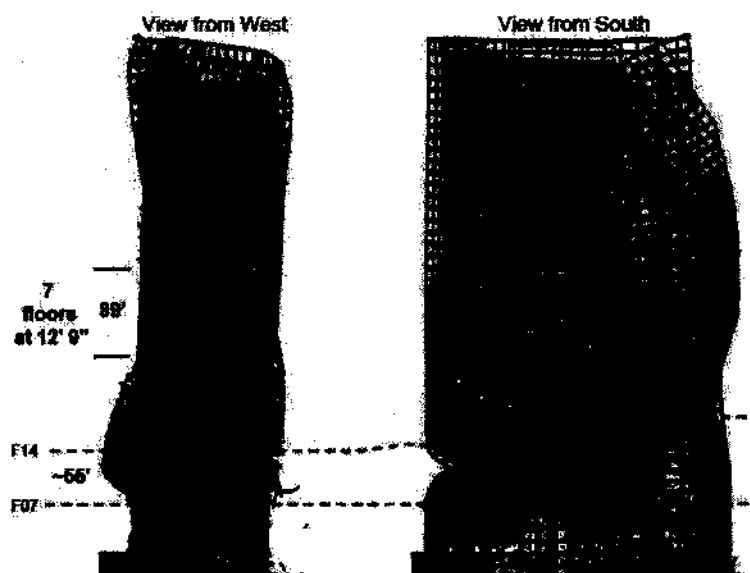


Figure 12-62. Exterior column buckling after initiation of global collapse with debris impact and fire-induced damage (slabs removed from view).

In Stage 1, ... the north face had descended approximately 2.2 m (7 ft)

In Stage 2, the north face descended at gravitational acceleration NCSTAR 1A p. 45

Global collapse occurred as the entire building above the buckled region moved downward as a single unit. NCSTAR 1A p. 48

\*\*\*\*\*

— "(Try taking a plastic drinking straw and buckling it by folding it over and then pushing down on the bent straw with your hand. The crimped straw provides almost no resistance to vertical forces, and neither did the buckled columns of WTC 7.)"

— This analysis is absurd. Steel columns weighing 500 to 1,000 pounds per lineal foot, which were designed to hold up three times the design load and were tied together with 3-foot-high steel beams on every floor, do not fold up like straws.

\*\*\*\*\*

— "The other half of the equation is that WTC 7 resembles a 'classic controlled demolition' because it supposedly 'imploded, collapsing completely, and landed in its own footprint.'"

— There was damage to two of the five surrounding buildings, but the majority of the debris landed within the footprint of the building.





"Loss of strength due to the transfer trusses could explain why the building imploded." (See FEMA, Chap. 5, p. 31: [http://www.fema.gov/pdf/library/fema403\\_ch5.pdf](http://www.fema.gov/pdf/library/fema403_ch5.pdf).)

"The debris of WTC 7 was mostly contained within the original footprint of the building." (See NIST 2004 Progress Report, Appendix L, p. 33: [http://www.nist.gov/manuscript-publication-search.cfm?pub\\_id=860567](http://www.nist.gov/manuscript-publication-search.cfm?pub_id=860567).)

\* \* \* \* \*

— "Many 'serious' groups such as AE911Truth quietly champion 'no-planes' such as former pilot Dwain Deets, engineer Anders Bjorkman . . . ."

— False. AE911Truth has never taken a position on MIHOP/LIHOP or "no-planes" issues at WTC. Although some individuals who are members of AE911Truth have taken a position on these and other issues, the organization AE911Truth has so far confined its research and comments to the demolition of the three towers.

## Extremely High Temperatures and Molten Metal Evidence at WTC

### R J Lee Group Report — Damage Assessment — 130 Liberty Street Property (2003)

— "[I]ron . . . **melted** during the WTC event."

— Figure 21 and Figure 22 show a spherical iron particle resulting from **the melting of iron (or steel)**. — See page 17 [PDF page 21] [Temperatures were at least **2800°F**.]

— "The presence of lead oxides on the surface of mineral wool indicates the exposure of high temperatures at which **lead** would have undergone **vaporization**" — See page 24 [PDF page 28] [Temperatures were at least **3180°F**.]  
<http://web.archive.org/web/20060114124849/http://www.nyenvirolaw.org/WTC/130%20Liberty%20Street/Mike%20Davis%20LMDC%20130%20Liberty%20Documents/Signature%20of%20WTC%20dust/WTC%20Dust%20Signature.Composition%20and%20Morphology.Final.pdf>

\* \* \* \* \*

### RJ Lee Group Report — Signature Assessment — 130 Liberty Street Property (2004)

"The presence of lead oxide on the surface of mineral wool indicate the existence of **extremely high temperatures during the collapse which caused metallic lead to volatilize (vaporize)**, oxidize, and finally condense on the surface of the mineral wool." — See page 12 [PDF page 13] [Temperatures were at least **3180°F**.]  
[http://web.archive.org/web/20060114130443/http://www.nyenvirolaw.org/WTC/130%20Liberty%20Street/Mike%20Davis%20LMDC%20130%20Liberty%20Documents/Signature%20of%20WTC%20dust/WTC%20DustSignature\\_ExpertReport.051304.1646.mp.pdf](http://web.archive.org/web/20060114130443/http://www.nyenvirolaw.org/WTC/130%20Liberty%20Street/Mike%20Davis%20LMDC%20130%20Liberty%20Documents/Signature%20of%20WTC%20dust/WTC%20DustSignature_ExpertReport.051304.1646.mp.pdf)

\* \* \* \* \*

"A combination of an uncontrolled fire and the structural damage might have been able to bring the building down, some engineers said. But that would not explain **steel** members in the debris pile that appear to have been **partly evaporated** in extraordinarily high temperatures, [Worcester Polytechnic Institute professor of fire protection engineering] Dr. [Jonathan] Barnett said." — James Glanz, writer for *The New York Times* [See page 2 of his article] <http://www.nytimes.com/2001/11/29/nyregion/nation-challenged-site-engineers-have-culprlt-strange-collapse-7-world-trade.html>

\* \* \* \* \*

"I saw melting of girders at World Trade Center." — Dr. Abolhassan Astaneh-Asl, professor of structural engineering, University of California at Berkeley <https://www.youtube.com/watch?v=syXpA6B85Ek>

"One piece Dr. [Abolhassan] Astaneh-Asl saw was a charred horizontal I-beam from 7 World Trade Center, a 47-story skyscraper that collapsed from fire eight hours after the attacks. **The beam**, so named because its cross-section looks like a capital I, had clearly endured searing temperatures. Parts of the flat top of the I, once five-eighths of an inch thick, had **vaporized**." — Kenneth Chang, writer for *The New York Times*  
<http://www.nytimes.com/2001/10/02/science/scarred-steel-holds-clues-and-remedies.html>

\* \* \* \* \*

Bart Voorsanger described the "meteorite" as "**molten steel and concrete** and all these things all fused by the heat into one single element." See <http://www.youtube.com/watch?v=jAakGoHLUZI>

\* \* \* \* \*

"The intense fire in the northeast corner opening of the 81st floor . . . a very bright white flame, as opposed to the typical yellow and orange surrounding flames, which generated a plume of white smoke, stands out. The intensity of this flame is considerably brighter than normal flames. . . . The brightness of the flame, along with the white smoke, suggests that **some type of metal is burning**." — NCSTAR 1-5A, Chapter 9, Appendix C, Figure 9-44, page 344 [PDF page 48] [http://www.nist.gov/customcf/get\\_pdf.cfm?pub\\_id=101030](http://www.nist.gov/customcf/get_pdf.cfm?pub_id=101030)

\* \* \* \* \*

"The debris pile at Ground Zero was always tremendously hot. Thermal measurements taken by helicopter each day showed underground temperatures ranging from 400°F to **more than 2,800°F**." — *SH&E At Ground Zero* [See PDF page 7] <http://web.archive.org/web/20030623013242/http://www.asse.org/ps0502vincoli.pdf>

\* \* \* \* \*

"Fire temperatures were so intense that **concrete melted** like lava around everything in its path." [Approximately **3300-4500°F**, depending on the aggregate used.] — The NYPD Museum (now closed)  
<http://www.archive.org/details/NewYorkPoliceMuseumWtcGunsMelted> (this link no longer works)

\* \* \* \* \*

NYCPM Home page <http://www.nycpm.org> (now closed)

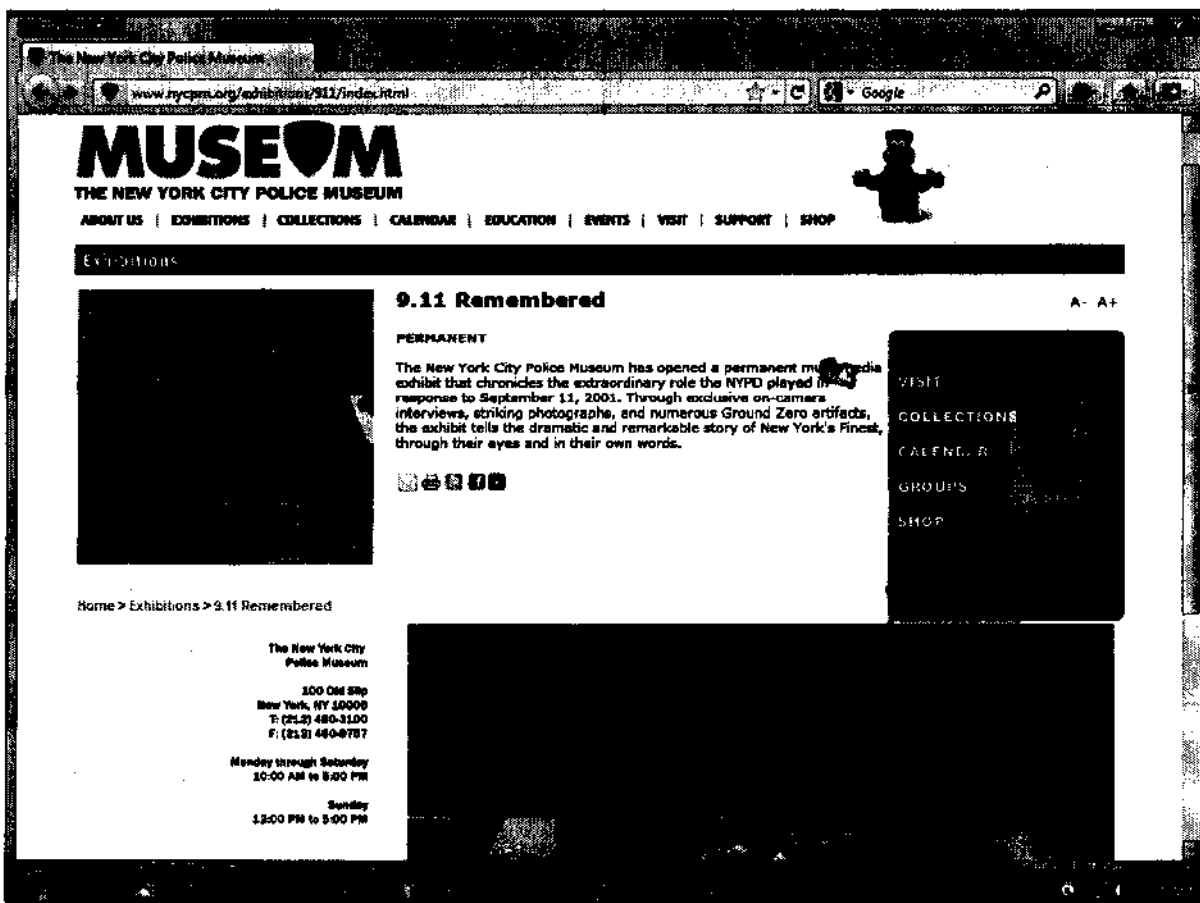
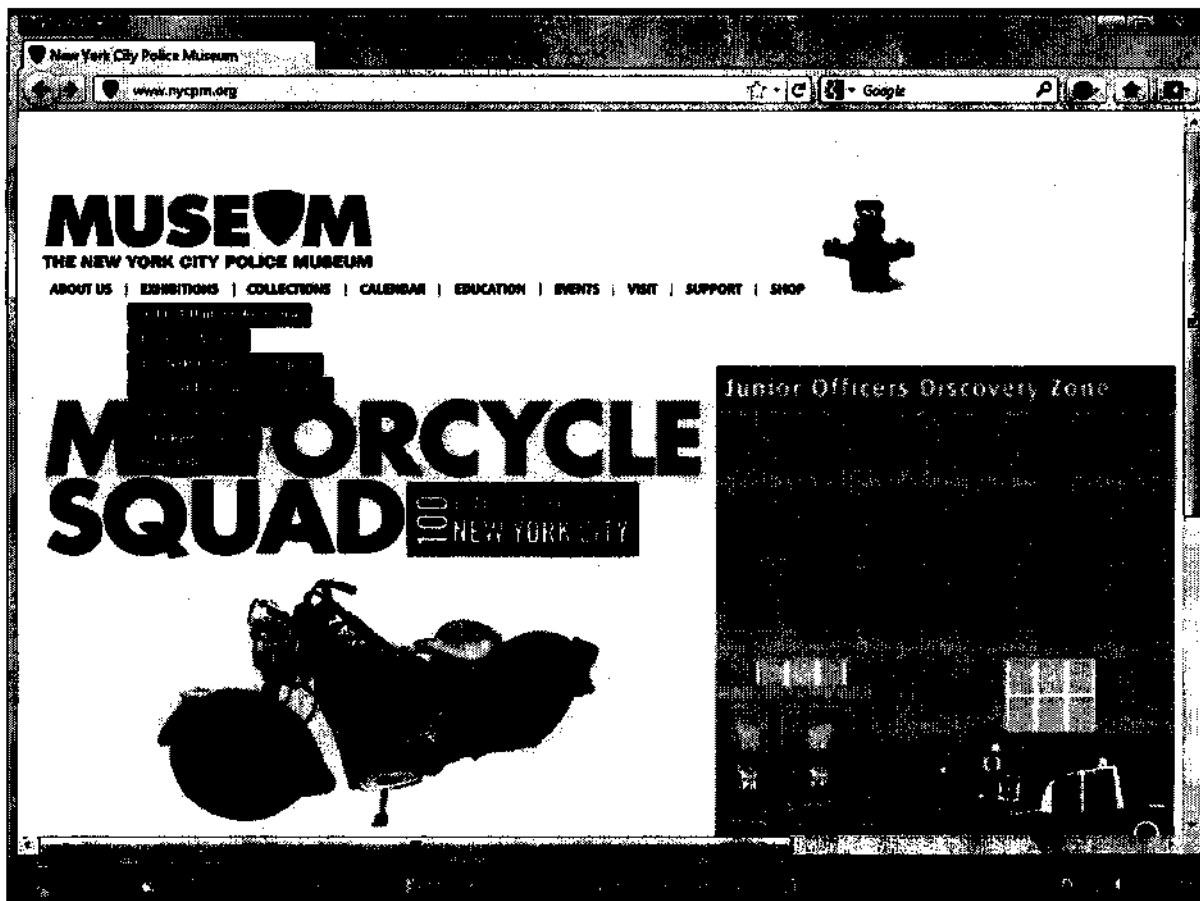
Home > Exhibitions > 9/11 Remembered <http://www.nycpm.org/exhibitions/911/index.html>

NY Police museum melted guns <http://www.archive.org/details/NewYorkPoliceMuseumWtcGunsMelted>

Case [http://ia600303.us.archive.org/3/items/NewYorkPoliceMuseumWtcGunsMelted/DSC\\_7411\\_color\\_corrected.png](http://ia600303.us.archive.org/3/items/NewYorkPoliceMuseumWtcGunsMelted/DSC_7411_color_corrected.png)

Now closed: New York City Police Museum 100 Old Slip, New York, NY 10005-3539 Phone (212) 480-3100

The museum has been closed and all the links no longer work, but you can see the saved screenshots below.





## **CONTROLLED DEMOLITIONS of STEEL-FRAMED HIGH-RISES**

**1977 — Biltmore Hotel, Oklahoma City, Oklahoma.** 28 stories. When it was imploded by Controlled Demolition, Inc. (CDI) in October 1977, the 245-foot-tall structure became the tallest steel-framed building to be demolished with explosives. See <http://www.controlled-demolition.com/biltmore-hotel>.

**1988 — Traveler's Insurance Building, Boston, Massachusetts.** 18 stories. 450,000 square feet. See <http://www.controlled-demolition.com/travelers-building>

**1997 — 500 Wood Street Building, Pittsburgh, Pennsylvania.** 27 stories. CDI's May 1997 implosion of the 344.5-foot-tall office building eclipsed the world record for the explosives demolition of urban steel buildings, which CDI set when it demolished the Biltmore Hotel (above). See <http://www.controlled-demolition.com/500-wood-street-building>

**1998 — J.L. Hudson Department Store, Detroit, Michigan.** 33 levels. October 1998. Hudson's was the tallest department store in the country and was second in square footage only to Macy's anchor store in NYC. It had two retail basements and 23 above-grade retail floors (meaning the stores on these floors were at least 50% above ground level), including mezzanines. Two additional basements and six upper stories in a tower provided storage and mechanical support for the 2.2 million square foot building. See <http://www.controlled-demolition.com/jl-hudson-department-store>

**2012 — Red Road flats, Glasgow, Scotland.** Eight tower blocks each 292 feet high. When these apartments were built in the mid-1960s, they were the tallest residential buildings in Europe. The first of these blocks, which consisted of three adjoining towers, was demolished in June 2012 as part of the Glasgow Housing Association's renewal program. The other seven will be brought down in 2017. According to William Sinclair, managing director of demolition contractor Safedem, Ltd., "The Red Road flats have presented a unique series of challenges ranging from the size of the buildings to the steel-frame structure." Indeed, because of that structure, the contractor planned for the bottom stories to remain undisturbed by the blowdown; they were later demolished using machines. About 275 kilos of explosives were used to bring down the triple block. Watch the demolition here: <http://www.bbc.com/news/uk-scotland-glasgow-west-18385434>

## **CTBUH Questions NIST Draft Report on WTC 7**

In October 2008, the Council on Tall Buildings and Urban Habitat (CTBUH) published a report on the NIST WTC 7 draft report.

In its report, titled "The Council on Tall Buildings and Urban Habitat Comments on the 'Structural Fire Response and Probable Collapse Sequence of World Trade Center Building 7 August 2008,'" the CTBUH questioned critical aspects of NIST's WTC 7 collapse theory and highlighted problems with NIST's draft report. In so doing, the Council expected NIST to correct these problems in its final report.

Though the Council raised several technical points about details of the modeling, it did not question NIST's conclusion, which was that fire had caused floor beams to fail, in turn leading to buckling of the internal columns and resulting in global failure.

The CTBUH report proves that its officials did not understand NIST's hypothetical collapse scenario, in which the floor beams did not *fail* but, rather, expanded lengthwise due to thermal expansion, causing a girder to be pushed off its seat.

**CTBUH wrote:** "[W]e cannot see any credible scientific evidence of a controlled demolition on WTC 7 or any of the other WTC buildings."

Apparently, the CTBUH officials who made this statement are not familiar with the laws of physics—specifically, free-fall acceleration and its relevance to WTC 7.

**CTBUH wrote:** "Several conclusions drawn in the NIST report on the contribution of structural components in failure initiation are unexpected and have raised concerns within the Council. These conclusions involve the role of both shear studs and local global buckling of the floor beams in failure initiation."

As mentioned above, the floor beams did *not* buckle in NIST's collapse scenario. Instead, the buckling occurred *only* in its interim computer model. In that fraudulent model, the fire heated the beams but not the cement slab. The temperature differential between the steel and the cement broke the shear studs, according to the computer model. This temperature differential, however, could *never* occur in a real fire.

In any case, it was shear stud failure, not buckled floor beams, which NIST used in its contrived computer model.

**CTBUH wrote:** "The failure of shear studs is surprising, and has been modeled in a very simplistic way, which may overestimate the failure of this element. Prior studies and real fire cases have not previously identified shear stud failure as a significant possibility."



**CTBUH wrote:** "It is unclear what the effect of a more accurate shear stud model would have produced in the NIST study, and in the somewhat extreme case of WTC 7 (given the multiple fire floors) it is unlikely that a significantly different overall conclusion might be reached."

Both of the above comments about shear studs were answered by two engineers at Victoria University in Melbourne, Australia. David Proe, a professorial research fellow, and Ian Thomas, director of the Center for Environmental Safety & Risk Engineering, wrote here, in response to the NIST draft report:

4. Similarly the LS-DYNA analysis on pp. 349-354 locks in thermal stresses by imposing no translation at all slab edges and **no thermal expansion or temperature in the slab. Both are unrealistic.**

5. We conducted a series of 21 standard fire tests on simply-supported composite beams in the 1980's [1]. These were summarized and the failure times were compared with those calculated based on strength. Excellent correlation was achieved, based on full composite connection. There was **no indication that shear stud failure could cause premature failure.** However, the beams were 3 m in length not 16 m, but the calculations on p. 347 do not show or imply any dependence on length."

**CTBUH wrote:** "It is surprising to see in-plane buckling of the beam as being a key generation of the initial failure, since it would be expected that the floors would bend out of the way on their major axis, combined with a local buckling of the bottom flange, like those found in the Cardington Fire Tests."

Again, CTBUH officials revealed their ignorance of the NIST collapse scenario.

**CTBUH wrote:** "It appears that the fire on Level 12 had passed its peak in the area of Column 79. Is it possible that failure occurred as part of the cooling cycle?"

This observation by CTUBH is correct. The fire *had* burned out in the area of collapse initiation more than an hour before the collapse occurred.

**CTBUH wrote:** "The report does not describe the detail failure mechanism of the girder connection to Column 79. Since this was critical to the failure we would expect to see diagrams of it, in its deflected, deformed shape immediately prior to collapse."

This is incorrect.

NIST describes the failure mechanism on page 611 [PDF page 273] of NCSTAR 1-9, Vol. 2 ([http://www.nist.gov/manuscript-publication-search.cfm?pub\\_id=861611](http://www.nist.gov/manuscript-publication-search.cfm?pub_id=861611)):

**Initial Local Failure for Collapse Initiation.** The simple shear connection between Column 79 and the girder that spanned the distance to the north face (to Column 44) failed on Floor 13. The connection failed due to shearing of erection bolts, caused by lateral thermal expansion of floor beams supporting the northeast floor system and, to a lesser extent, by the thermal expansion of the girder connecting Columns 79 and 44. Further thermal expansion of the floor beams pushed the girder off its seat, which led to the failure of the floor system surrounding Column 79 on Floor 13. The collapse of Floor 13 onto the floors below—some of which were already weakened by fires—triggered a cascade of floor failures in the northeast region. This, in turn, led to loss of lateral support to Column 79 in the east-west direction over nine stories (between Floors 5 and 14). The increase in unsupported length led to the buckling failure of Column 79, which was the collapse initiation event.

A graphic of the girder being pushed off its seat was included in NIST's technical briefing slide show on August 26, 2008 (page 32), but it was not included in the final report, which was published on November 25, 2008.

We agree with CTBUH's criticisms of the NIST draft report and believe that NIST's obfuscation of its methodology was enough to cause these professionals to conclude that the WTC 7 collapse resulted from floor beams buckling when, in fact, NIST's final analysis was that the beams expanded and pushed a girder off its seat.

How can professional engineers be expected to properly analyze a government report when its conclusion is so obscure and befuddling?

The fraudulent interim computer model that NIST used to invent the shear stud failure is just one of many frauds enumerated in a series of articles published by AE911Truth between November 2014 and May 2015 (see below):

INTRODUCTION (#1 of 6 in November 2014): <http://www.ae911truth.org/news/186-news-media-events-1-of-6-nist-fraud.html>

PART 1: NIST and Popular Mechanics Fabricate Myth About WTC 7's "Scooped-Out" 10 Stories (#2 of 6 in December 2014): <http://www.ae911truth.org/news/190-news-media-events-2-of-6-nist-fraud.html>

PART 2: NIST's Fictitious Gouge Launches Design Flaw Myth and Collapse Initiation Theory (#3 of 6 in February 2015): <http://www.ae911truth.org/news/197-news-media-events-3-of-6-nist-fraud-3.html>

PART 3: Trusses & Tanks — Popular Mechanics Helps NIST Create More Myths (#4 of 6 in March 2015): <http://www.ae911truth.org/news/206-news-media-events-4-of-6-nist-fraud-4.html>

PART 4: Independent Analysis Disproves NIST's New Thermal Expansion Hypothesis (#5 of 6 in April 2015): <http://www.ae911truth.org/news/215-news-media-events-5-of-6-nist-fraud-5.html>

PART 5: How Skyscrapers Are *Really* Imploded (#6 of 6 in May 2015): <http://www.ae911truth.org/news/217-news-media-events-6-of-6-nist-fraud-6.html>

### **CTBUH Questions NIST Draft Report on WTC 7**

In October 2008, the Council on Tall Buildings and Urban Habitat (CTBUH) published a report on the NIST WTC 7 draft report.

In its report, titled "The Council on Tall Buildings and Urban Habitat Comments on the 'Structural Fire Response and Probable Collapse Sequence of World Trade Center Building 7 August 2008,'" the CTBUH questioned critical aspects of NIST's WTC 7 collapse theory and highlighted problems with NIST's draft report. In so doing, the Council expected NIST to correct these problems in its final report.

Though the Council raised several technical points about details of the modeling, it did not question NIST's conclusion, which was that fire had caused floor beams to fail, in turn leading to buckling of the internal columns and resulting in global failure.

The CTBUH report proves that its officials did not understand NIST's hypothetical collapse scenario, in which the floor beams did not *fail* but, rather, expanded lengthwise due to thermal expansion, causing a girder to be pushed off its seat.

**CTBUH wrote:** "[W]e cannot see any credible scientific evidence of a controlled demolition on WTC 7 or any of the other WTC buildings."

Apparently, the CTBUH officials who made this statement are not familiar with the laws of physics—specifically, free-fall acceleration and its relevance to WTC 7.

**CTBUH wrote:** "Several conclusions drawn in the NIST report on the contribution of structural components in failure initiation are unexpected and have raised concerns within the Council. These conclusions involve the role of both shear studs and local global buckling of the floor beams in failure initiation."

As mentioned above, the floor beams did *not* buckle in NIST's collapse scenario. Instead, the buckling occurred *only* in its interim computer model. In that fraudulent model, the fire heated the beams but not the cement slab. The temperature differential between the steel and the cement broke the shear studs, according to the computer model. This temperature differential, however, could *never* occur in a real fire.

In any case, it was shear stud failure, not buckled floor beams, which NIST used in its contrived computer model.

**CTBUH wrote:** "The failure of shear studs is surprising, and has been modeled in a very simplistic way, which may overestimate the failure of this element. Prior studies and real fire cases have not previously identified shear stud failure as a significant possibility."

**CTBUH wrote:** "It is unclear what the effect of a more accurate shear stud model would have produced in the NIST study, and in the somewhat extreme case of WTC 7 (given the multiple fire floors) it is unlikely that a significantly different overall conclusion might be reached."

Both of the above comments about shear studs were answered by two engineers at Victoria University in Melbourne, Australia. David Proe, a professorial research fellow, and Ian Thomas, director of the Center for Environmental Safety & Risk Engineering, wrote here, in response to the NIST draft report:

4. Similarly the LS-DYNA analysis on pp. 349-354 locks in thermal stresses by imposing no translation at all slab edges and **no thermal expansion or temperature in the slab. Both are unrealistic.**

5. We conducted a series of 21 standard fire tests on simply-supported composite beams in the 1980's [1]. These were summarized and the failure times were compared with those calculated based on strength. Excellent correlation was achieved, based on full composite connection. There was **no indication that shear stud failure could cause premature failure.** However, the beams were 3 m in length not 16 m, but the calculations on p. 347 do not show or imply any dependence on length."

**CTBUH wrote:** "It is surprising to see in-plane buckling of the beam as being a key generation of the initial failure, since it would be expected that the floors would bend out of the way on their major axis, combined with a local buckling of the bottom flange, like those found in the Cardington Fire Tests."

Again, CTBUH officials revealed their ignorance of the NIST collapse scenario.

**CTBUH wrote:** "It appears that the fire on Level 12 had passed its peak in the area of Column 79. Is it possible that failure occurred as part of the cooling cycle?"

This observation by CTUBH is correct. The fire *had* burned out in the area of collapse initiation more than an hour before the collapse occurred.

**CTBUH wrote:** "The report does not describe the detail failure mechanism of the girder connection to Column 79. Since this was critical to the failure we would expect to see diagrams of it, in its deflected, deformed shape immediately prior to collapse."

This is incorrect.

NIST describes the failure mechanism on page 611 [PDF page 273] of NCSTAR 1-9, Vol. 2 ([http://www.nist.gov/manuscript-publication-search.cfm?pub\\_id=861611](http://www.nist.gov/manuscript-publication-search.cfm?pub_id=861611)):

**Initial Local Failure for Collapse Initiation.** The simple shear connection between Column 79 and the girder that spanned the distance to the north face (to Column 44) failed on Floor 13. The connection failed due to shearing of erection bolts, caused by lateral thermal expansion of floor beams supporting the northeast floor system and, to a lesser extent, by the thermal expansion of the girder connecting Columns 79 and 44. Further thermal expansion of the floor beams pushed the girder off its seat, which led to the failure of the floor system surrounding Column 79 on Floor 13. The collapse of Floor 13 onto the floors below—some of which were already weakened by fires—triggered a cascade of floor failures in the northeast region. This, in turn, led to loss of lateral support to Column 79 in the east-west direction over nine stories (between Floors 5 and 14). The increase in unsupported length led to the buckling failure of Column 79, which was the collapse initiation event.

A graphic of the girder being pushed off its seat was included in NIST's technical briefing slide show on August 26, 2008 (page 32), but it was not included in the final report, which was published on November 25, 2008.

We agree with CTBUH's criticisms of the NIST draft report and believe that NIST's obfuscation of its methodology was enough to cause these professionals to conclude that the WTC 7 collapse resulted from floor beams buckling when, in fact, NIST's final analysis was that the beams expanded and pushed a girder off its seat.

How can professional engineers be expected to properly analyze a government report when its conclusion is so obscure and befuddling?

The fraudulent interim computer model that NIST used to invent the shear stud failure is just one of many frauds enumerated in a series of articles published by AE911Truth between November 2014 and May 2015 (see below):

INTRODUCTION (#1 of 6 in November 2014): <http://www.ae911truth.org/news/186-news-media-events-1-of-6-nist-fraud.html>

PART 1: NIST and Popular Mechanics Fabricate Myth About WTC 7's "Scooped-Out" 10 Stories (#2 of 6 in December 2014): <http://www.ae911truth.org/news/190-news-media-events-2-of-6-nist-fraud.html>

PART 2: NIST's Fictitious Gouge Launches Design Flaw Myth and Collapse Initiation Theory (#3 of 6 in February 2015): <http://www.ae911truth.org/news/197-news-media-events-3-of-6-nist-fraud-3.html>

PART 3: Trusses & Tanks — Popular Mechanics Helps NIST Create More Myths (#4 of 6 in March 2015): <http://www.ae911truth.org/news/206-news-media-events-4-of-6-nist-fraud-4.html>

PART 4: Independent Analysis Disproves NIST's New Thermal Expansion Hypothesis (#5 of 6 in April 2015): <http://www.ae911truth.org/news/215-news-media-events-5-of-6-nist-fraud-5.html>

PART 5: How Skyscrapers Are *Really* Imploded (#6 of 6 in May 2015): <http://www.ae911truth.org/news/217-news-media-events-6-of-6-nist-fraud-6.html>



## Major Fires in Steel-Framed High-rise Buildings

**1970 — 1 New York Plaza** is a 50-story skyscraper in New York City that suffered a severe fire and explosion on August 5, 1970. The fire started around 6:00 PM on the 33<sup>rd</sup> and 34<sup>th</sup> floors and burned for more than six hours. It caused shear connections to fail and beams to drop onto girder flanges, resulting in a partial collapse of the 34<sup>th</sup> floor. The rest of the steel structure remained standing. See <http://911research.wtc7.net/wtc/analysis/compare/fires.html> and <https://www.wpi.edu/Pubs/ETD/Available/etd-050406-105306/unrestricted/macewicz.pdf>

**1975 — World Trade Center North Tower**, otherwise known as WTC 1, was still a 110-story skyscraper when its 11<sup>th</sup> floor suffered a fire from an unknown cause on February 13, 1975. The fire started shortly before midnight in a furnished office on the 11<sup>th</sup> floor and spread through some 65% of the floor (the core plus half the office area). By the time firefighters arrived, flames were also spreading vertically via telephone cable openings in the floor slab, causing subsidiary fires from the 9<sup>th</sup> to the 19<sup>th</sup> floors. The fire lasted more than three hours and did an estimated \$2 million worth of damage. Cleaning and service personnel were evacuated without any fatalities. However, of the 150 firefighters at the scene, 28 sustained injuries from the intense heat and smoke. According to Captain Harold Kull of Engine Co. 6, "It was like fighting a blow torch. Flames could be seen pouring out of 11<sup>th</sup> floor windows on the east side of the building." The structural steel trusses, undamaged, did not need to be replaced. See [http://bellaciao.org/en/article.php3?id\\_article=10613](http://bellaciao.org/en/article.php3?id_article=10613)

**1988 — First Interstate Bank** is a 62-story skyscraper in Los Angeles that suffered the worst high-rise fire in the city's history. From the late evening of May 4, 1988, through the early morning of the next day, 64 fire companies battled the blaze, which lasted for 3 1/2 hours and caused an estimated \$200 million of property damage. Of that fire, the U.S. Fire Administration wrote: "In spite of the total burnout of four and a half floors, there was no damage to the main structural members and only minor damage to one secondary beam and a small number of floor pans." See <http://www.usfa.fema.gov/downloads/pdf/publications/tr-022.pdf> (p. 21) and <http://911research.wtc7.net/wtc/analysis/compare/fires.html>

**1990 — Broadgate** was a partially completed 14-story building in London, England, when a fire began in a first-floor contractor's hut on June 23, 1990. Since the fire detection and sprinkler systems were not yet in operation during off-work hours, smoke and flames spread undetected throughout the building. Neither during nor after the 4½-hour fire—which for two hours exceeded 1,800° F—did any columns, beams, or floors collapse, despite large deflections in the structural steel exposed to fire. See <http://guardian.150m.com/fire/small/cardington.htm>

**1991 — One Meridian Plaza** is a 38-floor skyscraper in Philadelphia, Pennsylvania, that suffered a severe fire on February 23, 1991. The fire started on the 22<sup>nd</sup> floor and raged for 18 hours, gutting eight floors, causing an estimated \$100 million in direct property loss, and killing three firefighters. Despite the severity and duration of the fire, as evidenced by the damage the building sustained, no part of the building collapsed. Fire and safety officials said later that it was in no danger of collapsing, as had been feared. See <http://www.nytimes.com/1991/02/26/us/philadelphia-fire-officials-rule-out-collapse-of-tower.html> and <http://911research.wtc7.net/wtc/analysis/compare/fires.html>

**2001 — World Trade Center 5**, a nine-story building, was engulfed in fires on September 11, 2001, after sustaining heavy damage from falling debris. The fires were much more severe and widespread than those in the 47-story World Trade Center 7. Though there were some partial interior collapses in WTC 5, the overall structure remained standing. See <http://911research.wtc7.net/wtc/attack/wtc5.html>

**2004 — East Parque Central** is a 56-story, 730-foot office tower in Caracas, Venezuela, that went up in flames just before midnight on Saturday, October 16, 2004, on the 34<sup>th</sup> floor. By Sunday afternoon, it had burned for more 17 hours and spread over 26 floors, reaching the roof. Only two floors and some staircases in the building collapsed. Afterwards, engineers inspected the building and found it "very solid," according to Caracas Fire Chief Rodolfo Briceno. See <http://www.cbsnews.com/news/towering-inferno-in-caracas>

**2005 — The Windsor Tower** is a 28-story skyscraper in Madrid, Spain, that was being fireproofed when fire broke out on February 12, 2005. The not-yet-fireproofed upper 10 floors partially collapsed in stages over a period of more than two hours. Although flames spread down as low as the third floor and lasted up to 20 hours, the already-fireproofed lower 17 floors did not collapse. See <http://www.mace.manchester.ac.uk/project/research/structures/strucfire/CaseStudy/HistoricFires/BuildingFires/default.htm>



**2007 — Deutsche Bank Building** was originally a 41-story skyscraper, but in 2007 it was being dismantled because of massive damage incurred when debris was hurled into it from World Trade Center 2's explosion on September 11, 2001. On August 18, 2007, at 3:40 PM, a seven-alarm fire, started by workers' smoking, broke out on the 17th floor of the by-then-26-story structure. The fire burned for seven hours and heavily damaged 10 floors above and below its point of origin. Two firefighters died of smoke inhalation. The steel structure did not collapse. See [https://en.wikipedia.org/wiki/Deutsche\\_Bank\\_Building](https://en.wikipedia.org/wiki/Deutsche_Bank_Building)

**2009 — Mandarin Oriental Hotel/Beijing Television Cultural Center** In Beijing, China, was a not-yet-completed 44-story, 522-foot skyscraper that was totally engulfed in flames for more than three hours on February 9, 2009. The cause of the fire was said to be an unauthorized fireworks display during the Lunar New Year celebration. One firefighter died fighting the blaze. The structure, built with 140,000 tons of steel, did not collapse. It was later rebuilt. See <https://www.youtube.com/watch?v=3B1OnhSurP8> and [https://en.wikipedia.org/wiki/Beijing\\_Television\\_Cultural\\_Center\\_fire](https://en.wikipedia.org/wiki/Beijing_Television_Cultural_Center_fire) and <http://www.nytimes.com/2009/02/10/world/asia/10beijing.html>

**2010 — A Shanghai, China, high-rise apartment building** that was undergoing renovation broke out in a fire on November 15, 2010, that destroyed all 28 stories. The fire, started by sparks that ignited the scaffolding from welding work being done by unlicensed welders, burned for several hours and required more than 80 fire engines to contain it. It killed at least 58 people and injured more than 70 others. Firefighters on the ground were unable to hose water on the top of the 279-foot building. The steel structure did not collapse. See [https://en.wikipedia.org/wiki/2010\\_Shanghai\\_fire](https://en.wikipedia.org/wiki/2010_Shanghai_fire)

**2012 — The Dubai Tamweel** is a 34-story residential tower in the United Arab Emirates' most populous city, Dubai. It was partially gutted by fire on November 18, 2012. The blaze started at 1:30 AM, shot flames to every single floor, and was put out more than seven hours later—at around 8:20 AM. All residents were evacuated to safety. The steel-framed structure did not collapse. See <http://www.emirates247.com/news-in-images/pre-dawn-fire-guts-11t-s-tamweel-tower-2012-11-19-1.483797> and <http://gulfnews.com/news/uae/emergencies/fire-breaks-out-at-tamweel-tower-in-jumeirah-lake-towers-1.1106387>

## Witnesses of Molten Steel at Ground Zero

**Leslie Robertson**, structural engineer for the design of the World Trade Center: "[T]hey pulled out the big block of concrete and there was like a **little river of steel flowing.**"

@ 0:49 [http://www.youtube.com/watch?v=rjmHgES\\_lto](http://www.youtube.com/watch?v=rjmHgES_lto)

**Peter Tully**, president of Tully Construction of Flushing, N.Y., told AFP that he saw pools of "**literally molten steel**" at the World Trade Center.

[http://web.archive.org/web/20020905195530/http://www.americanfreepress.net/09\\_03\\_02/NEW\\_SEISMIC/new\\_seismic.html](http://web.archive.org/web/20020905195530/http://www.americanfreepress.net/09_03_02/NEW_SEISMIC/new_seismic.html)

**Richard Riggs**, debris removal specialist, quoted in The History Channel's "World Trade Center: Rise and Fall of an American Icon": "The fires got very intense down there and actually **melted beams** where it was **molten steel** that was being dug up."

@ 0:36 <http://www.youtube.com/watch?v=3Ogrupgt4mI&feature=related>

**Abolhassan Astaneh**, professor of civil engineering at the University of California, Berkeley, was one of the leading structural engineers who studied the collapse of the World Trade Center on 9/11: "I saw **melting of girders** in World Trade Center."

[http://www.pbs.org/newshour/bb/science-jan-june07-overpass\\_05-10](http://www.pbs.org/newshour/bb/science-jan-june07-overpass_05-10)

**Mark Lolzeaux**, founder of Controlled Demolition, Inc.: "There are both video tape and still photos of the **molten steel** being 'dipped' out by the buckets of excavators."

<http://libertypost.org/cgi-bin/readart.cgi?ArtNum=30926&Disp=4#C4>

Link to page: <http://www.libertypost.org/cgi-bin/readart.cgi?ArtNum=30926>

**Capt. Philip Ruvo**, FDNY: "You get down below and you'd see **molten steel—molten steel** running down the channel rail, like you're in a foundry, like lava."

@ 0:11 <http://www.youtube.com/watch?v=afZaK8zVbUw&feature=related>

**Joe O'Toole**, firefighter: "Underground fires raged for months. O'Toole remembers in February seeing a crane lift a steel beam vertically from deep within the catacombs of Ground Zero. 'It was dripping from the **molten steel,**' he said."

[http://911research.wtc7.net/cache/wtc/evidence/messengerinquirer\\_recoveryworker.html](http://911research.wtc7.net/cache/wtc/evidence/messengerinquirer_recoveryworker.html)

**Greg Fuchek**, vice president of sales for LinksPoint, Inc.: "In the first few weeks, sometimes when a worker would pull a steel beam from the wreckage, the end of the beam would be dripping **molten steel.**"

<http://gcn.com/articles/2002/09/09/handheld-app-eased-recovery-tasks.aspx>

**Richard Garlock**, a structural engineer for LERA: "Going below, it was smoky and really hot. . . . The debris past the columns was red-hot, **molten, running.**"

[http://www.pbs.org/americarebuilds/engineering/engineering\\_debris\\_06.html](http://www.pbs.org/americarebuilds/engineering/engineering_debris_06.html)

**James Glanz**, writer for *The New York Times*: "A three-foot **stalagmite of steel**, which looks for all the world like a drip candle, sits next to one of the immense steel columns that held up the north face of the tower."

<http://www.nytimes.com/2001/11/15/nyregion/a-nation-challenged-the-site-below-rubble-a-tour-of-a-still-burning-hell.html>

**Lee Turner**, paramedic: Turner himself crawled through an opening and down crumpled stairwells to the subway, five levels below ground. He remembers seeing in the darkness a distant, pinkish glow — **molten metal dripping** from a beam.

[http://web.archive.org/web/20140106090807/http://www.usnews.com/usnews/9\\_11/articles/911memories.htm](http://web.archive.org/web/20140106090807/http://www.usnews.com/usnews/9_11/articles/911memories.htm)

**William Langewiesche**, journalist: "In the early days, the **streams of molten metal** that leaked from the hot cores and flowed down broken walls inside the foundation hole."

<http://www.amazon.com/exec/obidos/ASIN/0865476756/centerforcoop-20> (pp. 31-32)

**Rpn Burger**, public health advisor at the CDC: "Feeling the heat, seeing the **molten steel**, the layers upon layers of ash, like lava, it reminded me of Mt. St. Helen's and the thousands who fled that disaster." [http://www.brazoshealth.org/sites/all/themes/health/images/pdfs/messages\\_in\\_the\\_dust.pdf](http://www.brazoshealth.org/sites/all/themes/health/images/pdfs/messages_in_the_dust.pdf)

**Mike Donoho**, interim Bryan Fire Department chief: "What you had were large columns of steel that were just stuck into massive amounts of **molten steel** and **other metals**." <http://web.archive.org/web/20021104073017/http://www.theeagle.com/septannlv/091102firefighter.htm>

**Tom Hickey**, union ironworker: With no special protective gear, he worked within a few feet of still burning fires, [which were] "like a volcano," hot enough that **molten steel** could be seen dripping down. "My boots melted every night," he recalled. "You just didn't stand in one place too long." <http://www.riverreporter.com/issues/02-09-05/wtc.htm>

**David Long**, of Ottawa, was in New York on 9/11, working at Merrill Lynch: "I went outside and saw a large hole in the left-hand tower, approximately 80 stories up. There was smoke coming out, but not a lot of fire. I could also see **streams of molten metal** coming from undamaged areas of the building, in three different places." <http://www.abc.net.au/news/2011-09-09/eyewitness-accounts-of-september-11/2866958>

**Lee Turner**, Boone County Firefighters: "He remembers seeing in the darkness a distant, pinkish glow—**molten metal** dripping from a beam—but found no signs of life." [https://web.archive.org/web/20020913065755/http://www.usnews.com/usnews/9\\_11/articles/911memories.htm](https://web.archive.org/web/20020913065755/http://www.usnews.com/usnews/9_11/articles/911memories.htm)

### Reports from Hearsay Witnesses

**Ken Holden**, who was involved with the organizing of demolition, excavation, and debris removal operations at Ground Zero, later told the 9/11 Commission: "Underground, it was still so hot that **molten metal** dripped down the sides of the wall from [WTC] Building 6." [http://www.historycommons.org/entity.jsp?entity=ken\\_holden](http://www.historycommons.org/entity.jsp?entity=ken_holden)

**Alison Geyh**, Ph.D., John Hopkins Bloomberg School of Public Health: "Fires are still actively burning and the smoke is very intense," reports Alison Geyh, Ph.D. "In some pockets now being uncovered, they are finding **molten steel**." <http://www.jhsph.edu/Publications/Special/Welch.htm>

**Herb Trimpe**, chaplain: "I talked to many contractors and they said they actually saw **molten metal** trapped, beams had just totally had been melted because of the heat." <http://web.archive.org/web/20021006003613/http://www.recordonline.com/adayinseptember/trimpe.htm>

**Kathy Dawkins**, New York Department of Sanitation (DSNY) spokeswoman: "For about two and a half months after the attacks, in addition to its regular duties, DSNY played a major role in debris removal — everything from **molten steel** beams to human remains." [http://waste360.com/mag/waste\\_dday\\_ny\\_sanitation](http://waste360.com/mag/waste_dday_ny_sanitation)

**Sarah Atlas**, New Jersey Task Force One Urban Search and Rescue: "Fires burned and **molten steel** flowed in the pile of ruins still settling beneath her feet." <http://www.sas.upenn.edu/sasalum/newsltr/summer2002/k911.html>

**Ben Johnson**, first responder: "The workers go through three pairs of rubber boots a day because they melt in the three-week-old fire of **molten metal** and jet fuel." <https://web.archive.org/web/20100225015212/http://www.illusiongenius.com/articles/11-01.html>



**ARCHITECTS  
& ENGINEERS**  
*for 9/11 TRUTH*

## **2,750+ ARCHITECTS & ENGINEERS CALL FOR NEW INVESTIGATION OF DESTRUCTION OF THE 3 WORLD TRADE CENTER SKYSCRAPERS ON 9/11/2001**

### **The AE911Truth Petition**

### **TO THE MEMBERS OF THE HOUSE OF REPRESENTATIVES AND OF THE SENATE OF THE UNITED STATES OF AMERICA**

#### **Please take notice that:**

On Behalf of the People of the United States of America, the undersigned Architects & Engineers for 9/11 Truth and affiliates hereby petition for, and demand, a truly independent investigation with subpoena power in order to uncover the full truth surrounding the events of 9/11/01 – specifically the collapse of the World Trade Center Towers and Building 7. We believe there is sufficient doubt about the official story to justify re-opening the 9/11 investigation. The new investigation must include a full inquiry into the possible use of explosives that might have been the actual cause of the destruction of the World Trade Center Twin Towers and Building 7.

Sincerely,

The Undersigned

### **Architects (Degreed & Licensed – Active & Retired)**

#### **FAIA Architects**

**Patrick Ahearn**

FAIA  
M. Architecture  
Syracuse University  
Boston, MA US

**Daniel Barnum**

FAIA  
B. Arch., Rice University  
Houston, TX, US

**Eason Cross**

FAIA  
BA, Harvard, M. Arch. HGSD  
Alexandria, VA, US

**David Helpern**

FAIA  
NY, NY, US

**Kevin Kelly**

FAIA  
Austin, TX, US

**David Metzger**

FAIA, FCSI  
B. Arch, Univ. of Michigan  
M.S. Architectural Science,  
Cornell University  
Bethesda, MD, US

**John Miller**

FAIA  
M. Arch, Harvard University  
Graduate School of Design  
Cambridge, MA, US

**Paul Oles**

FAIA  
M. Architecture, Yale  
Santa Fe, NM, US

**Harry Robinson III**

FAIA  
B. Arch., MCP Harvard  
MCPUD, Harvard  
Washington, DC, US

**Louis Sirianni**

FAIA NCARB LEED  
B. Arch., Carnegie-Mellon  
University of Fine Arts  
M. Arch. (Urban Design),  
Harvard University  
Boston, MA, US

**LeRoy S. Troyer**

FAIA  
B.A. Architecture  
Notre Dame University  
South Bend, IN, US

**AIA Architects****Paul Adams**

AIA, LEED AP  
M. Arch., Colorado Univ.  
Denver, CO, US

**Christopher Allen**

AIA  
Ann Arbor, MI, US

**Sven Alstrom**

AIA, NCARB  
BGS University of Kansas  
Lawrence, KS, US

**Dante Amato**

AIA, NCARB, LEED AP  
BA Environmental Des/Arch,  
UC Berkeley  
Las Vegas, NV, US

**Mark Baker**

AIA  
M.A. Architecture  
Denver, CO, US

**Stephen Barasch**

AIA, APA, NCARB  
B. Arch., Univ of Arizona  
M. Arch., Rice Univ.  
San Luis Obispo, CA, US

**Dan Bartlett**

AIA  
B. Architecture  
Keene, NH, US

**Timothy Becher**

AIA  
B. Architecture  
San Luis Obispo, CA, US

**Kent Beirne**

AIA  
Hooksett, NH, US

**Judy Bennett**

AIA, LEED AP  
B. Architecture  
Boston Arch. Center  
Wayland, MA, US

**John Benson**

AIA  
B. Architecture  
University of Arizona  
Boston, MA, US

**Gary Blanchard**

AIA  
B. Architecture  
Univ. of Louisiana  
Conyers, GA, US

**Michael Blutt**

AIA  
B. Architecture  
Univ. of Oregon  
Milton, MA, US

**Bertie Bonner**

AIA  
M. Architecture  
Media, PA, US

**Robert Braddock**

AIA  
B. Arch., Virginia Tech.  
Arlington, VA, US

**Stewart Brecher**

AIA, NCARB  
B. Architecture  
Rhode Island School of Design  
Bar Harbor, ME, US

**Berton Bremer**

AIA, NCARB  
B. Architecture  
Boston Arch. College  
Cambridge, MA, US

**Joseph Bridy**

AIA  
B. Architecture, Temple Univ.  
Philadelphia, PA, US

**Daniel Brogan**

AIA  
B.S. Fire Protection Eng.  
MBA  
San Diego, CA, US

**Michael Burke**

AIA  
M. Arch., Univ. of Texas  
Redlands, CA, US

**Sam Callaway**

AIA  
B.A. Arch., Yale Univ.  
M.A. Arch., Yale Univ.  
Gaylordsville, CT, US

**Roger Carrillo**

AIA  
M. Architecture,  
Texas A&M University  
San Antonio, TX, US

**Gregory Cashman**

AIA, NCARB  
B. Arch., Iowa State Univ.  
Sun Prairie, WI, US

**Thomas Chamberlain**

AIA  
San Jose, CA, US

**Michael Chelednik**

AIA  
B.S. Architecture  
Temple University  
Redding, CT, US

**James Cirino**

AIA, NCARB  
Boston Architectural Center  
Lynnfield, MA, US

**George Clower**

AIA  
B.A., B.S. Architecture  
Corpus Christi, TX, US

**Michael Coffey**

AIA  
New York, NY, US

**Michael Coleman**

AIA  
B. Architecture, UC Berkeley  
Oakland, CA, US

**Kevin Connors**

P.E., AIA  
B.S. Civil Eng., M. Arch.  
Buffalo, NY, US

**Richard Curtis**

AIA  
B. Architecture  
Cornell University  
Portland, ME, US

**Claude R Cuvier**

AIA  
B. Architecture  
New York Inst. of Tech.  
Coram, NY, US

**Elaine Dabrowski**

AIA  
B. Architecture  
Portland, OR, US

**Timothy Davis**

AIA  
M. Arch., Univ. of Penn  
B.A., Stanford Univ.  
Austin, TX, US

**Paul Dibos**

AIA  
M. Architecture  
Univ. of California  
Baltimore, MD, US

**Robert Diericks**

AIA  
B. Architecture  
Illinois Institute of Tech.  
Naples, FL, US

**Nancy Dingman**

AIA  
M. Architecture  
Harvard Univ. Graduate  
School of Design  
Cambridge, MA, US

**Alice Dodson**

AIA  
Asheville, NC, US

**Tim Duffy**

AIA  
B. Architecture  
Roseville, CA, US

**Steven Dye**

AIA  
B.S. ARET  
Bluefield State College  
Beckley, WV, US

**J. Scott Eddy**

AIA, NCARB, CSI  
B. Architecture  
Univ. of Southwestern LA  
Jackson, MS, US

**Ted Elden**

AIA (Ret.)  
B. Architecture  
Charleston, WV, US

**Jerry Erbach**

Architect AIA  
B.A., B. Architecture  
Univ. of Notre Dame  
Chevy Chase, MD, US

**Diane Evers**

AIA  
Rehoboth, MA, US

**Rob Farr**

AIA  
B. Architecture  
University of Arizona  
Jackson, MS, US

**Jacques Fauteux**

AIA  
B. Arch., Oklahoma Univ.  
Hubbardston, MA, US

**Deborah Fein-Brug**

AIA NCARB  
B. Architecture  
University of Detroit  
Hopkinton, MA, US

**John Ferrera**

AIA  
Master of Architecture  
Norwich University  
Fitchburg, MA, US

**Stephen Flickenschild**

Architect, AIA, NCARB  
B. Arch., Univ. of Arkansas  
Walden, NY, US

**Bob Foreman**

AIA  
University of Florida  
Norcross, GA, US

**Richard Fort**

AIA  
Asheville, NC, US

**William Franz**

AIA, NCARB  
B.S. Architecture  
University of Texas  
Fort Worth, TX, US

## AIA Architects

### Richard Gage

AIA  
B. Architecture  
Berkeley, CA, US

### Theodore George

AIA  
Belmont, MA, US

### Fred Gleason

AIA  
Boston, MA, US

### William Green

AIA  
B. Arch., Univ. of Illinois  
JD Loyola  
Roselle, IL, US

### Kathi Gregory

CSI, AIA Intern Architect  
Univ. Tennessee  
Nashville, TN, US

### John Guenther

AIA  
University of Kansas  
Wildwood, MO, US

### Christopher Hanlon

AIA  
Swampscott, MA, US

### Milena Haskovec

AIA NCARB LEED AP  
M. Arch., Charles Univ., Prague  
Cambridge, MA, US

### Scott Hatfield

AIA, Chairman of the Board  
Iowa State University  
Des Moines, IA, US

### Patrick Hickox

AIA  
Boston, MA, US

### Cynthia Howard

AIA  
M. Arch., MIT and Harvard  
Biddeford Pool, ME, US

### Brian Hromadka

AIA  
M. Architecture  
Boston Arch. College  
Newburyport, MA, US

### Michael Johnson

AIA, LEED AP BD+C  
B. Architecture  
Baltimore, MD, US

### David Joiner

AIA  
B. Architecture  
Overland Park, KS, US

### Andy Jordan

AIA  
Pratt Institute  
Brooklyn, NY, US

### Steven Karr

AIA, President  
B. Architecture  
Rockville, MD, US

### Jon Keiser

Architect, AIA, LEED AP  
B.S. Environ. Design  
Ball State University  
Frederick, CO, US

### Majed Khater

AIA  
B.S. Arch. Eng.  
Jami'at Al-Yarmouk, Jordan  
Las Vegas, NV, US

### Larry Kleinkemper

AIA  
B. Architecture  
Austin, TX, US

### Bret Kudlicki

AIA, LEED AP  
M. Arch., Univ. of Colorado  
Denver, CO, US

### Mike Kwon

AIA  
B.S. Architecture  
B.S. Bldg. Construction  
Atlanta, GA, US

### David Lawson

AIA  
B. Architecture  
Oklahoma State Univ.  
Tampa, FL, US

### Nina Le Baron

Architect AIA  
B.A. Interior Architecture  
RI School of Design  
Sausalito, CA, US

### Anne Lee

AIA  
M. Architecture  
Boston, MA, US

### Patrick Lee

AIA  
B. Arch., Virginia Tech  
Denver, CO, US

### Jim Lencioni

AIA LEED  
B.A., Architectural Design  
University of Illinois  
Oak Park, IL, US

### Robert Livermore

AIA, LEED AP  
M. Arch., Harvard University  
Waltham, MA, US

### Michael LoBuglio

AIA  
Newtown, CT, US

### Kevin McDonough

AIA, Architect  
B.S. Architecture  
Anderson, SC, US

### Patrick McFadden

AIA, NCARB, CBI, BCO  
B.S. Architecture  
Chester Heights, PA, US  
Architect, AIA, LEED AP

### John McKittrick

B. Arch., M. Arch.  
Helena, MT, US

### Gary Mendoza

AIA LEED  
B. Architecture,  
Boston Architecture College  
Dorchester, MA, US

### George Metzger

AIA  
M. Arch., Harvard Univ.  
Cambridge, MA, US

### Martin Michaelis

AIA  
Amherst, NH, US

### Paula Milan

AIA NCARB  
B. Architecture  
Roger Williams University  
Seekonk, MA, US

### Murray Miller

AIA  
B. Architecture  
Kansas State University  
Wilkes Barre, PA, US

### Uzma Mirza

Architect AIA, NCARB,  
LEED AP  
B. Arch., Carleton Univ.  
Ottawa Ontario, Canada  
Fort Wayne, IN, US

### Derek Molenaar

AIA  
M. Architecture  
Univ. of Pennsylvania  
Philadelphia, PA, US

### Scott Mullen

AIA, LEED AP BD + C  
San Francisco, CA, US

### James Myers

AIA  
M. Architecture,  
State Univ. of NY, Buffalo  
Rochester, NY, US

### Christian Mungenast

AIA  
Architect  
Arlington, MA, US

### Crystal Nanney

AIA  
B. Architecture  
University of Detroit  
Savannah, GA, US

### Daniel Ocasio

AIA, NCARB  
M. Architecture  
Columbia University  
Boston, MA, US

### George Owen

AIA  
B. Architecture, MIT  
Wallingford, PA, US

### Neil Pinney

AIA  
Architect, MAUD  
Prescott, AZ, US

### Robert Plichta

AIA, NCARB  
B. Architecture  
Aurora, IL, US

### Oliver Purcell

AIA, Emeritus  
B. Architecture  
Edmond, OK, US

### Maria Puternicki

AIA  
New York, NY, US

### Raymond Rebilas

AIA  
B. Arch., Drexel University  
Collingswood, NJ, US

### Lionel Recio

AIA  
MA  
San Francisco, CA, US

### Daniel Roach

AIA  
B. Arch., Drury University  
Salem, OR, US

### Ron Ronconi

AIA  
Mountain View, CA, US

### Sam Rue

AIA  
University of Louisiana  
Lafayette, LA, US

### Michael Ryan

AIA  
B. Architecture  
San Francisco, CA, US



**AIA Architects**

**Deane Rykerson**  
AIA NCARB LEED AP  
B. Arch., Boston  
AC M. Des., Harvard  
Cambridge, MA, US

**Boleslav Ryzinski**  
AIA  
New York, NY, US

**Robert Saladoff**  
AIA  
M. Arch., Univ. of Maryland  
Ashland, OR, US

**Jeffrey Shelden**  
AIA  
B. Architecture  
Lewistown, MT, US

**Damon Smith**  
AIA  
BA, Carnegie Mellon Univ.  
Orlando, FL, US

**James Smith**  
AIA  
M. Architecture  
Denver, CO, US

**Rob Smith**  
AIA  
M. Arch., Iowa State Univ.  
Des Moines, IA, US

**Douglas Snider**  
AIA  
B. Arch., Univ. of Notre Dame  
Medford, OR, US

**Cary Spiegel**  
AIA  
B. Arch., City College, NY  
Plainfield, NJ, US

**James Stafford**  
AIA  
B. Architecture  
Mississippi St. Univ., S/ARC  
Hendersonville, NC, US

**Michael Stoker**  
AIA  
M. Arch., Univ. of Utah  
Park City, UT, US

**Ray Strang**  
AIA  
B. Architecture  
MD, US

**James Stutzman**  
AIA  
B. Architecture, CAP  
Ball State University  
Carmel, IN, US

**Jessica Sulprizio**  
AIA, NCARB  
M. Architecture  
Wentworth Inst. of Tech.  
Boston, MA, US

**Dohn Swedberg**  
AIA  
B. Architecture  
Washington State Univ.  
Tacoma, WA, US

**Jim Swords**  
AIA  
B. Architecture  
University of Kansas  
Boston, MA, US

**David Techau**  
AIA  
B. Arch., AZ State  
MSC, Cornell University  
Kula, HI, US

**George Thomas**  
AIA  
Master of Architecture  
Virginia Polytechnic Inst.  
& State Univ.  
Baltimore, MD, US

**John Titus**  
AIA LEED AP  
B. Architecture  
University of Minnesota  
Boston, MA, US

**Matthias Troitzsch**  
AIA  
M. Architecture  
San Francisco, CA, US

**Thomas Urtz**  
AIA, LEED AP  
B. Architecture  
Syracuse University  
Boston, MA, US

**James Vignola**  
AIA  
M. Architecture, Univ. of FL  
Gainesville, FL, US

**John Vivier**  
AIA  
Architect-Engineer  
EES Engineer  
Dipl. Paris University  
Las Vegas, NV, US

**Henry Weinberg**  
AIA LEED AP BD&C  
B. Architecture  
Carnegie Mellon Univ.  
Melrose, MA, US

**Helen Wilkes**  
AIA  
M. Architecture  
Kensington, MD, US

**Brad Will**  
AIA, LEED AP  
B. Architecture  
Woodstock, NY, US

**Katherine Williams**  
AIA NOMA  
B.A. Architecture  
Howard University  
Washington, DC, US

**Robert Winovitch**  
AIA  
B.S. Architecture  
Texas A&M University  
Austin, TX, US

**Andrew Wolff**  
AIA, LEED  
M. Arch., Yale University  
Los Angeles, CA, US

**Architects**

**John Acosta**  
ARA, Licensed Architect  
Big Bear Lake, CA, US

**Leslie Allen**  
M. Architecture  
University of New Mexico  
Mill Valley, CA, US

**Randy Allen**  
B. Arch., Texas Tech Univ.  
Lubbock, TX, US

**Bassam Altwal**  
VP Architecture  
M. Architecture  
Concord, CA, US

**Alan Anderson Jr.**  
Architect  
B.S. Arch., Cal Poly SLO  
Fair Oaks, CA, US

**Glenn Anderson**  
Consultant  
B.S. Architectural Eng.  
Univ. of Texas at Austin  
Dallas, TX, US

**Reginald Anz**  
B.S. Architectural Studies  
University of Texas  
Dallas, TX, US

**Mario Arbore**  
Viera, FL, US

**Jeff Arnold**  
Architect  
Orinda, CA, US

**Dave Arnoth**  
NCARB  
M. Architecture  
University of New Mexico  
Los Angeles, CA, US

**Paul Asaro**  
Architect  
B.A. Architecture  
Fair Oaks, CA, US

**Ronald Avery**  
Architect  
Seguin, TX, US

**Douglas Baker**  
Architect  
M. Architecture  
Hamden, CT, US

**George Baker**  
Victor, NY, US

**Michael Balay**  
Architect  
Fishers, IN, US

**Christine Balint**  
Architect  
B Arch  
Aberdeen, NJ, US

**Laurie Barlow**  
M. Architecture  
Cal Poly, San Luis Obispo  
South Pasadena, CA, US

**Paul Barnard**  
Architect  
B. Arch., M. Arch. (UD)  
Laguna Beach, CA, US

**Tor Barstad**  
Architect  
B. Arch., M.S. Arch.  
Phoenix, AZ, US

**Justin Barth**  
B. Arch.  
Univ. of California, Berkeley  
Los Alamitos, CA, US

## Architects

### Ronaldo Bassini

B.S. Mech. Eng., M. Arch.  
B.S. Yale College, M. Arch.  
Columbia University  
Santa Rosa, CA, US

### Sami Basuhail

Architect  
B.S. Architecture, MSIS  
Fairfax, VA, US

### Mike BeDell

Licensed Architect  
B. Arch. Cal Poly, Pomona  
Tucson, AZ, US

### Jim Bedinghaus

Architect  
M. Architecture  
St. Petersburg, FL, US

### James Beglinger

Architect  
B.S. Arch., Heald Eng. College  
San Francisco, CA, US

### Fariba Beighlie

Architect, NCARB, MS  
Architecture, LEED AP  
BD+C  
M. Architecture  
Seal Beach, CA, US

### Marc Beique

Architect  
BFA, B. Arch., Rice Univ.  
Monterey, CA, US  
Austin, TX, US

### Rob Belles

Architect  
M. Arch., MS Civil, UIUC  
Rockford, IL, US

### James Bell

Architect  
B.S., Architecture,  
University of Cincinnati  
Madison, WI, US

### Joe Bellows

Architect  
Martinez, CA, US

### Tom Bender

Architect  
M. Architecture  
Univ. of Pennsylvania  
Nehalem, OR, US

### Ralph Bennett

Architect  
B. Arch., Princeton Univ.  
MFA Arch., Princeton Univ.  
Silver Spring, MD, US  
Boston, MA, US

### Howard Berglund

Architect  
M. Architecture  
Seattle, WA, US

### Fred Betz

Architect  
B.S. Arch., Univ. of Cincinnati  
Cincinnati, OH, US

### William Beutel

Registered Architect-LEED AP  
R.I.S.D.; B. Architecture  
Apo, AE, US

### Paul Bilgen

B.S. Civil Engineering  
Michigan Tech. Univ.  
Hanover, NH, US

### Jerry Bischoff

(Ret.) Architect  
B. Arch, Univ. of Illinois  
San Diego, CA, US

### Ken Blevins

Architect  
M. Arch., Texas A&M Univ.  
Austin, TX, US

### Mark Blomquist

Master of Architecture  
University of Michigan  
Iron Mountain, MI, US

### Michael Boardway

B.S. Architecture  
Cal Poly, Pomona  
Lake Arrowhead, CA, US

### Thomas Bohlen

Chief Tech. Officer, MECSD  
B. Arch., Univ. of Illinois  
Fountain Hills, AZ, US

### Tab Bonidy

NCARB  
B. Arch., Univ. of Miami  
M. Environ. Planning,  
AZ State University  
Edwards, CO, US

### Earl Booth

Architect  
Bachelor of Fine Arts  
and Architecture  
Salt Lake City, UT, US

### Richard Bouchard

Registered Architect  
B. Arch., Kent State, Ohio  
Franklin Lakes, NJ, US

### Stephen Bourne

Architect  
B. Arch., Univ. of Cincinnati  
Seattle, WA, US

### Andus Brandt

Architect  
B.A. Architecture  
Berkeley, CA, US

### Robert Briggs

Masters of Architecture,  
University of Oregon  
Pullman, WA, US

### William Brinnier

Architect  
B. Architecture  
Kingston, NY, US

### Paul Broches

M. Arch., Columbia Univ. Grad.  
School of Arch. and Planning  
New York, NY, US

### Thomas Burnham

Architect  
M. Architecture  
San Francisco, CA, US

### Robert Cain

B.A. Architecture  
Auburn University  
Charlotte, NC, US

### Robert Calhoun

Architect  
B. Arch., AZ State  
Scottsdale, AZ, US

### Gary Canner

M. Arch., Architecture &  
Historic Preservation,  
Univ. of Michigan College  
of Arch. & Urban Planning  
Marblehead, MA, US

### Richard Caragol

Architect  
M. Arch., Univ. of Oregon  
Walnut Creek, CA, US

### James Carruthers

Architect  
B. Architecture  
Richardson, TX, US

### Arpsd Chabafy

Architect  
Dipl. Arch., ETH Polytechnic  
University Zurich  
Tustin, CA, US

### Mark Chavez

Architect  
BSAS, Architecture  
University of Nebraska  
Omaha, NE, US

### Dartmond Cherk

Architect  
B. Arch., UC Berkeley  
Mill Valley, CA, US

### Josh Chesnik

Architect  
M. Architecture, UNLV  
Las Vegas, NV, US

### Brandon Chouinard

Architect  
B. Architecture  
Oklahoma City, OK, US

### Douglas Clark

M. Architecture  
New School of Arch.  
And Design, San Diego  
Grants Pass, OR, US

### Tom Clifford

Notre Dame  
Boston, MA, US

### Doug Clower

B. Architecture  
Texas Tech. University  
Irving, TX, US

### John Cole

Architect  
Walnut Creek, CA, US

### D. Michael Collins

M. Architecture  
Univ. of Colorado, Denver  
Natick, MA, US

### Deborah Collins

University of Kentucky  
Boston, MA, US

### Raymond Conley

Architect, Emeritus  
B. Architecture  
Houston, TX, US

### Conrad Cortellini

BFA, Indiana University  
Indianapolis, IN, US

### Alicia Crothers

B. Architecture  
Cornell University  
Cambridge, MA, US

### Reginald Cude

Architect  
Arlington, VA, US

### James Cyr

Architect  
B. Arch., B.A., Urban Studies  
Boston, MA, US

**Architects**

**Mark Davis**  
Architect  
Carson City, NV, US

**John de Lalla**  
LEED AP  
Boston Arch. College  
Acton, MA, US

**Fred De Santo**  
Architect  
B.A. Univ. of Kentucky  
Ukiah, CA, US

**J. DeRienzo**  
Architect  
B.S. Architecture  
Washington University,  
St. Louis, MO  
Florence, SC, US

**Jerome Diepenbrock**  
Architect  
B. Architecture  
Seattle, WA, US

**Neil Dixon**  
NCARB  
B.A. Architecture,  
Boston Architectural Center  
Worcester, MA, US

**Larry Dodge**  
Architect  
B. Architecture  
Univ. of Minnesota  
Minneapolis, MN, US

**Russel Donohue**  
Portland, OR, US

**Alexander Dority**  
Architect  
B.A. Arch., Stanford Univ.  
Santa Fe, NM, US

**Skip Doughty**  
Architect  
Woodside, CA, US

**Eric Douglas**  
Architect  
Howard Beach, NY, US

**Joseph Duda**  
Architect, NCARB  
M. Arch. I, UCLA  
Santa Fe, NM, US

**Ladd Ehlinger**  
B. Architecture  
Louisiana State University  
Metairie, LA, US

**John Eisenhart**  
Architect  
San Diego, CA, US

**Charles Ekstedt Sr.**  
B. Architecture  
University of Minnesota  
Saint Paul, MN, US

**Thomas Epps**  
B. Architecture & Design  
Kansas State University  
Kirbyville, MO, US

**Laurie Erickson**  
Architect  
Independent B.A.  
Arch. & Engineering  
Petaluma, CA, US

**Herb Everett**  
B. Architecture  
Boston Arch. College  
Framingham, MA, US

**Mike Fairchild**  
Architect  
B. Arch., University of Idaho  
Middleton, ID, US

**Michael Feeney**  
B. Architecture  
Roger Williams College  
Amston, CT, US

**Robert Ferenc**  
Architect  
B. Arch., M. Arch.  
University of Colorado  
Longmont, CO, US

**Michael Fiebig**  
Architect  
M. Architecture  
University of Colorado  
Littleton, CO, US

**William Fields**  
South Hamilton, MA, US

**William Firschein**  
Architect  
M. Arch., UCLA  
Los Angeles, CA, US

**Lyle Fishell**  
Arch. Eng. and Architecture,  
Norwalk St. Tech. College  
Stamford, CT, US

**Mark Fitzgerald**  
Architect  
M. Environmental Design  
Grand Prairie, TX, US

**Robert Fitzgerald**  
B. Environmental Design  
Texas A & M College of Arch.  
Houston, TX, US

**Peter Foxley**  
Architect  
B Arch., Univ. of Houston  
Pearland, TX, US

**Christopher Free**  
Architect  
M. Arch., Univ. of Illinois  
Brighton, MI, US

**William Freund**  
Registered Architect  
B.S. Architecture, UVA  
Sewell, NJ, US

**Lafaye Frédéric**  
Architect DPLG  
Bordeaux, France

**Michael Gaddis**  
Architect  
San Rafael, CA, US

**Mark Gannon**  
Architect  
Masters  
Canton, MI, US

**Jaime Garrido**  
Architect  
B. Urban Architecture,  
Madrid University  
Madrid, ES

**Don Gibbons**  
Architect  
Pleasant Hill, CA, US

**Jody Gibbs**  
Architect  
M. Architecture  
Tucson, AZ, US

**John Gillies**  
Architect  
B. Arch., UC Berkeley  
Del Mar, CA, US

**Jim Gleeson**  
B. Arch., Univ. of Florida  
Charlotte, NC, US

**Michael Goldfinger**  
B. Architecture  
Rockville, MD, US

**Abby Goodman**  
Professional Architect  
B.S. Psychology

**Jan Gorlach**  
Architect  
MA, Krakow, Poland  
Brooklyn, NY, US

**Ken Gorski**  
B. Arch. Professional Degree  
University of Kansas  
El Paso, TX, US

**William Gravely**  
Architect  
M. Arch., Harvard University  
Crawfordville, FL, US

**John Gresko**  
M Arch, MS Civil Engineering,  
Univ. of Illinois Urbana-  
Champaign  
Elk Grove Village, IL, US

**James Grier**  
Registered Architect, PA  
ABA Wharton, UOP  
Philadelphia, PA, US

**Randy Hafer**  
B.A. Arch., Stanford Univ.  
M. of Arch., Yale Univ.  
Billings, MT, US

**Gary Hall**  
B. Architecture  
Ball State University  
South Bend, IN, US

**Robert Hart**  
Architect  
B.S. Architectural Studies,  
Univ. of Illinois  
Naperville, IL, US

**Kenneth Hattan**  
Architect  
B. Architecture  
University of Oregon  
Vancouver, WA, US

**Alan Haymond**  
Architect  
B. Architecture  
Rensselaer Polytechnic  
Greenwich, NY, US

**John Heflebower**  
B. Arch,  
California St. Univ., Fresno  
Fresno, CA, US

**Peter Hendrickson**  
Architect  
Santa Rosa, CA, US

**C. Henry, Sr.**  
President  
B. Architecture  
Newport News, VA, US

**James Hernandez**  
Licensed Architect  
San Marcos, CA, US

**Architects****Phillip Hesketh**

NCARB  
B.A. Architecture  
Boston Architectural College  
Sanford, ME, US

**Karen Hisata**

Bachelor of Arts, Arch.  
Univ. of California, Berkeley  
Portola Valley, CA, US

**Larz Hitchcock**

Architect  
Anchorage, AK, US

**Gregory Holah**

Architect  
B. Arch., Univ. of OR;  
M. Arch., Wash. Univ., St. Louis  
Portland, OR, US

**Dennis Holloway**

Architect  
B. Arch., Univ. of Michigan,  
MAUD, Harvard  
Rio Rancho, NM, US

**Arlene Hopkins**

Architect & Educator  
M. Arch., M.A. Education  
Santa Monica, CA, US

**John Howland**

Architect  
Walnut Creek, CA, US

**Michael Hudson**

Architect  
M. Architecture, Clemson  
Mesa, AZ, US

**Patrick Huff**

B.S. Environmental Eng.  
B.S., M.S. Architecture  
Oklahoma University  
Woodland Hills, CA, US

**Sonne Idelshon**

Architect, (Ret.)  
B.A. Arch., Cal Poly Univ.,  
Pomona; USC  
Pomona, CA, US

**Rex Ingram**

Architect  
M. Architecture,  
University of Pennsylvania  
Salem, MA, US

**Toshiro Isa**

Architect  
B. Architecture  
University of Nebraska  
Gardena, CA, US

**Ernest Terry Jakel**

Architect  
B. Architecture  
Orange, CA, US

**Ugljesa Janjic**

Bachelor of Arts  
Emphasis on Architecture  
University of Washington  
Longmont, CO, US

**Jon Jenson**

Project Manager  
M. Architecture  
Madison, WI, US

**Joseph Jimenez**

B. Architecture  
Kansas State University  
Kansas City, MO, US

**Frederick Johnson**

Architect  
West Haven, CT, US

**Nelson Johnson**

Architect & Civil Engineer  
M. Architecture  
Columbia University  
San Francisco, CA, US

**Kenneth Howe Jones**

M. Architecture  
University of Illinois  
Hansville, WA, US

**James Jorgensen**

Architect  
B. Architecture  
Healdsburg, CA, US

**Jeffrey Kadowec**

B. Architecture  
Kent State University  
Las Vegas, NV, US

**Olga Kahn**

Architect  
M. Architecture  
M.I.T. Cambridge, MA  
Wellfleet, MA, US

**Robert Kahn**

M. Arch., California State  
Polytechnic University  
Portland, ME, US

**Shashank Kamat**

Architect  
B.A.  
Andover, CT, US

**Alan Kato**

Architect  
B.S.  
Morton Grove, IL, US

**Donald Ketner**

Architect, CCS  
Architecture, Penn State  
Anchorage, AK, US

**Saeed Khorshid**

Architect  
B. Architecture  
Vienna, VA, US

**Jon Kinsella**

Architect  
Castle Rock, CO, US

**Tanner Kirchoff**

Architect  
Kansas State University  
San Antonio, TX, US

**Allen Kitselman**

Architect  
B.A. Architecture  
Berryville, VA, US

**Fred Klein**

Architect  
B. Architecture  
Cornell University  
Eastsound, WA, US

**John Klingman**

Architect  
M. Arch., Univ. Oregon  
BSCE, Tufts University  
New Orleans, LA, US

**Barry Koren**

Architect  
B. Architecture  
City College of New York  
Oak Park, IL, US

**Timothy Krebs**

Architect  
Englewood, FL, US

**S. Kay Kuhne**

Architect  
M. Architecture AS  
M.I.T., Cambridge, MA  
Tallahassee, FL, US

**Gary Kuhstoss**

Architect  
Phoenix, AZ, US

**Daniel La Pan**

Executive Director,  
Facility Services  
B.S. M. Architecture  
Saginaw, MI, US

**William Lamar**

Architect  
B. Architecture  
Little Rock, AR, US

**Lamont Langworthy**

Architect  
B. Architecture  
University of Washington  
Graton, CA, US

**Jeffrey Latham**

Architect  
Nogales, AZ, US

**Jeff Laur**

Architect  
B. Architecture  
Oklahoma State University  
Harrison, AR, US

**David Lawson**

AIA  
B. Architecture  
Oklahoma State University  
Tampa, FL, US

**Hondo Layes**

Architect  
B.S.  
Olympia, WA, US

**Edward Leftwich**

Architecture  
University of Natal SA  
Smyrna, GA, US

**James Leritz**

Architect  
B. Arch., Univ. IL  
M. Arch., GSD  
San Francisco, CA, US

**Michael Leventhal**

Master of Architecture  
Univ. of California, Berkeley  
Clearlake Park, CA, US

**Jeff Lewis**

B. Arch. and M. Arch.  
Tulane University  
Columbia, SC, US

**John Link**

Architect  
M. Architecture  
Berkeley, CA, US

**Dennis Lippert**

Architect  
Montana State University  
Missoula, MT, US

**Victor Lopes**

Architect  
B. Arch. UC Berkeley  
Ukiah, CA, US

**Kenneth Loretto**

Architect  
M. Architecture  
Berkeley, CA, US

## Architects

### William Lowry

Architect  
M. Architecture  
Davis, CA, US

### Frank Lucatelli

B.A. Environment Studies  
and Architecture  
University of Detroit  
Kalamazoo, MI, US

### Irwin Luckman

Architect (Ret.)  
B. Architecture  
Oakland, CA, US

### Henry MacLean

B. Architecture  
Boston Architectural College  
Milton, MA, US

### Steve MacMillan

Architect  
Univ. of Michigan, Ann Arbor  
San Mateo, CA, US

### Michael Mangino

Architect  
B.S., Arizona State University  
Phoenix, AZ, US

### Bradley Marczuk

Architect  
B. Arch., Univ. of Oregon  
M. Arch., Univ. of Washington  
Boise, ID, US

### Patrick Matthews

B. Arch. and M.A. Structural  
Engineering Architecture  
Univ. of Illinois  
Chicago, IL, US

### Marc Maurer

Architect  
M. Architecture  
Arizona State University  
Grand Junction, CO, US

### Bruce Maxwell

Architect  
M. Architecture  
Oakland, CA, US

### Ross Maxwell

Architect  
B.S. Architecture  
Cal Poly SLO  
Costa Mesa, CA, US

### Kerry McCarthy

Architect  
B. Architecture  
University of Oregon  
Grand Ronde, OR, US

### Steve McCormick

M. Architecture  
University of New Mexico  
Santa Fe, NM, US

### Robert McCoy

Architect  
B. Architecture  
UC Berkeley  
La Canada, CA, US

### Madeline McDowell

Architect  
B. Arch., Cornell University  
Cambridge, MA, US

### John McKeen

Architect  
B. Arch., Univ. of MN  
Saint Paul, MN, US

### Edward McMillen

B. Arch., Ohio State Univ.  
Santa Fe, NM, US

### Charles Mears

B.A. Architecture,  
University of Minnesota  
Minneapolis, MN, US

### Joseph Mello Jr.

BS Architecture,  
Wentworth Inst. of Tech.  
Norton, MA, US

### Nathan Menard

B. Architecture  
Louisiana Tech. Univ.  
Santa Ana, CA, US

### Forrest Mertz

M. Architectural Engineering  
Oklahoma State University  
New York, NY, US

### Duncan Milne

M. Architecture  
University of Pennsylvania  
Durham, CT, US

### MW Montgomery

Williamstown, MA, US

### James Morgan

New York, NY, US

### Stephen Moylan

B. Architecture  
University of Notre Dame  
Libertyville, IL, US

### Kurt Mueller

Architect  
AA, Liberal Arts  
Orange Coast College  
Costa Mesa, CA, US

### Darryl Muir

BED, University of Colorado  
Colorado Springs, CO, US

### Michael Mullin

Architect  
B. Architecture  
Carnegie Mellon  
San Francisco, CA, US

### Jonathan Murray

Wentworth Inst. of Technology  
South Berwick, ME, US

### Kim Murray

B. Architecture  
Montana State University  
San Francisco, CA, US

### Ralph Mursinna

Architect  
B. Architecture  
San Diego, CA, US

### Richard Neel

B. Industrial Arts  
Southwest Texas State  
Houston, TX, US

### Scott Nelson

Architect  
B. Architecture, WSU  
Bremerton, WA, US

### Frederic Newcomer

Architect (Ret.)  
Arch. Penn State University  
Columbia Falls, ME, US

### Barry NewDelman

Architect, ALA, NCARB  
B. Arch., University of Illinois  
Portland, OR, US

### Marc Nightwine

Senior Associate  
Austin, TX, US

### David Noble

B. Architecture,  
Univ. of California, Berkeley  
Seal Beach, CA, US

### James Nordlie

Architect  
M.A. Architecture  
University of Colorado  
Denver, CO, US

### Josh Oqueli

M Architecture  
University of Colorado  
Denver, CO, US

### April Palencia

Architect  
B. Arch., University of Miami  
Santa Barbara, CA, US

### David Parker

B. Architecture,  
Pennsylvania State University  
Sewickley, PA, US

### David Parry

M Arch. in Urban Design,  
Harvard University  
Southborough, MA, US

### David Peabody

M. Architecture  
Yale School of Architecture  
Alexandria, VA, US

### Joseph Peavey

Architect  
M. Architecture  
University of Idaho  
Boise, ID, US

### James Pelsor

Architect  
M. Architecture  
University of Wisconsin  
Augusta, ME, US

### Juan Perez

Architectural Consultant  
B. Architecture, UNPHU  
Staten Island, NY, US

### John Pesa

B. Architecture  
Roger Williams University  
Halifax, MA, US

### Steven Petitpas

B. Architecture  
Boston Architectural Center  
Boston, MA, US

### Willie Pettus

Architect  
Berkeley, CA, US

### Thomas Piatt

Boston Architectural Center  
Milton, MA, US

### Ronald Plakus

Architect  
B.A. Architecture  
Kansas State University  
Beltsville, MD, US

### Angelo Poblete

B. Architecture  
Univ. of Saint Thomas, PH  
Poway, CA, US



## Architects

### Dale Port

Architect  
Waterloo, IA, US

### James Poulson

M. Architecture  
University of Nebraska  
Kansas City, MO, US

### William Prevatel

B. Architecture, Syracuse Univ.  
M.S. Architecture & Urban  
Design, Columbia University  
North Miami, FL, US

### Mickey Propadovich

Architect  
B. Architecture  
IIT, Chicago, IL  
Chicago, IL, US

### Howard Quaintance

B. Architecture  
Pennsylvania State University  
Reading, PA, US

### Michael Quiana

Architect  
B. Architecture  
Beacon, NY, US

### John Raposo

Architect  
B. Architecture  
Worcester, MA, US

### James Rasmussen

Architect  
Arch. & Geography Degr.  
Rohnert Park, CA, US

### Ronald Ray

B. Architecture  
Kansas State University  
Kansas City, MO, US

### Karen Renick

Masters in Architecture  
Austin, TX, US

### Eve Reynolds

Architect  
M. Architecture  
North Hollywood, CA, US

### Douglas Rhodes

Architect  
B.S. Architecture  
Whitefish, MT, US

### C.J. Richards

R.A., B. Architecture  
University of Minnesota  
Milwaukee, WI, US

### Leland Roberts

Master of Architecture  
State University of New York  
Carmichael, CA, US

### John Rogers

Architect  
M. Architecture, Pratt Institute  
Hartford, CT, US

### Alexandra Romanova

B. Architecture  
Illinois Institute of Tech.  
Chicago, IL, US

### Mike Rosen

Temple University  
Bala Cynwyd, PA, US

### Zachary Rose

M. Architecture  
University of Michigan  
Brooklyn, NY, US

### Bill Roslansky

Massachusetts Inst. of Tech.  
Woods Hole, MA, US

### Mark Rudolf

Registered Architect  
B. Architecture, Virginia Tech  
Basalt, CO, US

### Ingrid and John Russell

Prof. Emer. Landscape Arch.  
Grad. Dipl. Urban  
& Reg. Plng. AA London  
Bloomington, IN, US

### William Russell

Architect, Structural Engineer  
B. Arc., M.S. Arch. Eng.  
University of IL, Urbana  
Atlanta, GA, US

### Jim Rymasz

Architect  
M. Architecture  
Seattle, WA, US

### Andrew Salkin

M. Architecture  
University of Washington  
Seattle, WA, US

### Richard Salman

Architect  
B.A.  
Las Vegas, NV, US

### Grazyna Samborska

Architect  
M. Architecture  
Polytechnic Univ., Gdansk  
Cherry Hill, NJ, US

### Cheryl Sanchez

Long Beach, CA, US

### Peter Scaglione

Architect  
B.A. Architecture  
New York, NY, US

### Kian Shamloo

Architect  
MA, UNL  
Annandale, VA, US

### Daniel Shea

Architect  
Architecture, Univ. of Penn.  
New Haven, CT, US

### M. Victoria Shipley

B.S. Architecture  
University of Maryland  
Norcross, GA, US

### Alan Shulman

Architect  
B. Architecture  
New London, NH, US

### Leslie Simons

San Rafael, CA, US

### Scott Small

B. Architecture  
Kent State University  
North Branford, CT, US

### Kenneth Smith

Architect  
B. Architecture  
Forestville, CA, US

### Derick Snare

M. Architecture  
Harvard University Graduate  
School of Design  
Somerville, MA, US

### Jamsheed Sobhani

Architect, NCARB  
M. Architecture  
Northridge, CA, US

### David Solomon

Architect  
B. Architecture  
Denver, CO, US

### George Somers

Architect  
B. Architecture  
Catholic Univ. of America  
Stafford, VA, US

### Richard Speer

Architect  
B. Architecture  
Boerne, TX, US

### Thomas Spendiarian

B. Arch., Univ. of Arizona  
Tucson, AZ, US

### Rory Stevens

São Paulo, BR

### Peter Stone

Architect  
M. Arch., B. Civil Eng.  
Tallahassee, FL, US

### Alan Stump

B. Arch.  
Cal Poly San Luis Obispo  
Rancho Santa Margarita,  
CA, US

### Jessica Sulprizio

AIA, NCARB  
M. Architecture  
Wentworth Inst. of Tech.  
Boston, MA, US

### John Swanson

Architect  
B.A., St. Olaf College  
Bismarck, ND, US

### Kathy Sweeten

Architect  
M. Sci., Univ. of Louisville  
Louisville, KY, US

### Howard Switzer

Architect  
Linden, TN, US

### Brien Tal-Baker

M. Architecture  
Boston Architecture College  
Boston, MA, US

### C Matthew Taylor

Architect  
B.A. Architecture  
Hilton Head Island, SC, US

### Jerome Taylor

Architect  
B. Arch., Penn State Univ.  
Tardley, PA, US

### Dennis Teske

Architect  
Foster City, CA, US

### Jon Thogmartin

Architect NCARB  
B. Arch., Univ. of Kansas  
Colton, CA, US

### James Tomlin

Architect  
B. Architecture  
Cal Poly, San Luis Obispo  
Fresno, CA, US



## Architects

### Charles Traylor

Architect  
B. Architecture, Texas Tech.  
Dallas, TX, US

### Vassilios Valaes

B. Architecture  
Illinois Institute of Tech.  
Cambridge, MA, US

### Peter Van Erp

Architect  
B. Architecture  
Providence, RI, US

### Roger VanFrank

Architect  
Salt Lake City, UT, US

### Richard Wallace

M. Arch & Urban Design  
Washington Univ., St. Louis  
Chicago, IL, US

### Neil Warren

Master's in Architecture  
and Building Engineering  
Tokyo Institute of Tech.  
Tokyo, JP

### Jeffrey Way

R.A.  
B. Architecture  
Washington, DC, US

### Peter Wells

Architect  
M. Architecture, Harvard Univ.  
Peterborough, NH, US

### Frederick Wepfer

Licensed Landscape Architect,  
Building Designer, Env. Design  
Lacey, WA, US

### Bryan Westgate

Architect  
M. Architecture  
Cleveland, OH, US

### Maureen Westrick

RIBA, Architect  
B. Arch., Ball State University  
Intervale, NH, US

### Dale Williams

Landscape Architect  
M.S. Land Architecture  
San Diego, CA, US

### Glenn Williams

NCARB  
B. Arch., Univ. of S. California  
Venice, CA, US

### LaVerne Williams

B.S. Arch., Univ. of Houston  
Houston, TX, US

### Walter Wilson

Principal Architect  
Architectural Engineering,  
Architectural Design  
Milwaukee, WI, US

### Mark Wonner

California State, SLO  
Cardiff, CA, US

### Joseph Wythe

B. Architecture  
University of Oklahoma  
Sandpoint, ID, US

### Leslie Young

Architect  
B. Architecture  
San Francisco, CA, US

### Alan Zorthian

B. Architecture  
New School of Architecture  
Altadena, CA, US

## Architectural Professionals (Degreed Only)

### Edward Anastas

Designer  
B. Arch., MS AUD  
Santa Monica, CA, US

### Sultan Anibaba

Architect  
Rochester, GB

### Mahesa Arifin

B. Architecture  
Univ. Pelita Harapan  
Denpasar, ID

### Victoria Ashley

Psychology Researcher  
B. Architecture  
Alameda, CA, US

### Elizabeth Atly

M. Arch., Univ. of Washington  
Newport, OR, US

### Jonathan Baczewski

Intern Architect  
B. Arch., NJIT SOA  
Mount Tabor, NJ, US

### Daniel Barrett

B. Architecture  
Designer/Project Manager  
B.A. University of Florida  
Winter Park, FL, US

### Jason Borland

B. Architecture  
Lawrenceville, GA, US

### Julian Boswell

M. Architecture  
Cal State Polytechnic Univ.  
St. Charles, MO, US

### Travis Brasch

Assoc. AIA, Design Principal  
San Francisco, CA, US

### Gene Brault

Contractor/Industrial Designer  
B.S. Industrial Design  
Los Angeles, CA, US

### De Lane Bredvik

Cascade, CO, US

### James Broadbent

Project Manager/Designer  
M. Arch., Univ. of Oregon  
Jackson, WY, US

### Brita Brookes

M. Architecture  
Ferndale, MI, US

### Brian Brooks

B. Architecture  
Cornell University  
Winchester, VA, US

### Laura Brunik

M. Architecture  
North Dakota State Univ.  
Horn Lake, MN, US

### Alek Buriak

B. Architecture  
Oklahoma State University  
Edmond, OK, US

### Ian Carney

CA, US

### Adam Caulfield

B. Architectural Technology  
Rochester, NY, US

### Wendall Chin

B. Architecture  
Boston Architectural College  
Cambridge, MA, US

### Arman Chowdhury

Architectural Staff  
M. Architecture, U Penn  
B. Architecture, BUET  
Philadelphia, PA, US

### Eric Cibelli

Intern Architect  
B. Arch., New York Institute  
Lake Ronkonkoma, NY, US

### Oscar Cisnero

Architectural Professional  
Antioch, CA, US

### Joshua Clark

B. Architecture  
Cornell University  
Pittsburgh, PA, US

### Deborah Cohen

B. Architecture  
Southern California Institute  
of Architecture  
Los Angeles, CA, US

### Ian Colburn

Architect  
B. Architecture, Virginia Tech.  
New York, NY, US

### John Court

Intern Architect  
B.S. Architectural Studies  
University of Wisconsin  
Seattle, WA, US

### Adam Cramm

BSD, M. Architecture  
Cedar Rapids, IA, US

### Daniel Csank

Intern Architect  
M. Arch., Tulane University  
New York, NY, US

### Greg Demchak

Designer  
M. Architecture  
Cambridge, MA, US

### Tyler Doherty

B. Architecture,  
Rensselaer Polytechnic Inst.  
White Plains, NY, US

## Architectural Professionals

**George Eddins, III**  
George Eddins Associates –  
Architectural Consultant  
B. Architecture  
UNC Charlotte, AA CPCC  
Charlotte, NC, US

**Daniel Fairchild**  
Architectural Consultant  
B. Architecture  
Spokane, WA, US

**Esat Farman**  
Architectural Consultant  
B.A. Engineering  
FH Hamburg, Germany  
Baghdad, IQ

**Justin Feider**  
Intern Architect  
Denver, CO, US

**Jason Ferrier**  
Architectural Designer  
B.S. Arch., UT Arlington  
Washougal, WA, US

**Kristin Flurry**  
M. Architecture  
University of New Mexico  
Albuquerque, NM, US

**Cordelia Fox Waelle**  
B. Architecture, SIA  
Arlesheim, Baselland  
Switzerland

**Shawn Fullington**  
Designer  
B. Architecture  
Asheville, NC, US

**M G**  
Consultant/Architect  
M. Sci., Architecture  
Richmond, VA, US

**Lukasz Gala**  
Architect  
Vienna Univ. of Technology  
Vienna, AT

**Brian Gatewood**  
Intern/Staff Architect  
M. Arch., B. Arch.,  
University Of New Mexico  
Albuquerque, NM, US

**Alan Glassman**  
M. Arch., Associate AIA, CSI,  
SA, Architectural  
B. Arch., USC; M Arch, UC  
Berkeley  
Lancaster, PA, US

**Marcio Gomes Da Cruz**  
B. Architecture, B.S. Geography  
UNCC  
Miami, FL, US

**Karlene Gullone**  
B. Architecture  
San Francisco, CA, US

**Rob Hansen**  
Autocad Operator/Designer  
Assoc. of Occupational Sci.  
CAD  
Anchorage, AK, US

**Brian Heagney**  
M. Architecture  
Arch. Services Provider  
M. Architecture, Pratt Institute  
Greensboro, NC, US

**Peter Heer**  
Designer  
B. Architecture  
Clearwater, FL, US

**Joshua Higginbotham**  
M. Architecture  
Ball State University  
Mishawaka, IN, US

**Kevin Hoelscher**  
M. Architecture  
Berkeley, CA, US

**Jim Holcomb**  
B. Architecture  
University of Kentucky  
Lebanon, TN, US

**Nick Hubof**  
AIT, M Arch, LEED A.P.,  
Iraq War Veteran  
M. Arch., University of Idaho  
Boise, ID, US

**Ken Hutchinson**  
B. Architecture  
Eugene, OR, US

**Chloe Ingram**  
Associate AIA  
BSAS, UT Austin;  
M. Architecture, UT, Arlington  
Fort Worth, TX, US

**Jessica Irely**  
B. Landscape Architecture  
University of Rhode Island  
Warwick, RI, US

**Joseph Irion**  
B. Landscape Architecture  
Cal Poly San Luis Obispo  
San Diego, CA, US

**Cheriel Jensen**  
M. Architecture  
UC Berkeley  
Saratoga, CA, US

**David Johnson**  
Dr., FAICP, Ph.D.  
B.A. Arch. & MCP, Yale  
Ph.D., Cornell  
Asheville, NC, US

**Chad Jones**  
B. Architecture  
B.S., Science, Major in Arch.  
WUSTL  
S. Petersburg, FL, US

**Todd Jordan**  
Dir., Principal Arch., Pres.  
B. Architecture  
Austin, TX, US

**Chris Jung**  
B. Architecture  
Berkeley, CA, US

**Robert Kauffman**  
AIA  
B. Architecture  
University of Oregon  
Atlanta, GA, US

**Kristen Kepner-Coleman**  
B. Architecture  
Auburn University  
Atlanta, GA, US

**Mona Kirkpatrick**  
Intern Architect  
B.A. in Architecture  
Des Moines, IA, US

**Donald Koberg**  
(Ret.) Architect  
Professor Emeritus, M. Arch  
San Luis Obispo, CA, US

**James Kobrynich**  
Project Manager  
B.S., Architectural Tech.  
NYIT  
Dalton, PA, US

**Joseph D Kunz**  
B. Architecture  
University of Texas  
Austin, TX, US

**Dylan Lamar**  
Architecture Student,  
Engineering Intern  
BSCE, Univ. of Arkansas  
Eugene, OR, US

**Jan Leits**  
B. Architecture  
Berkeley, CA, US

**Kevin Likins**  
M. Architecture  
Savannah College  
of Art and Design  
Falls of Rough, KY, US

**Christopher Lynch**  
Architect  
B. Arch. Philadelphia Univ.  
Whitney Point, NY, US

**David Mack**  
AAIA, MBA  
B. Arch., Univ. of Notre Dame  
Orlando, FL, US

**Cameron Madison**  
B.S. Architecture  
Texas Tech. University  
Lubbock, TX, US

**Timothy Mason**  
CEO  
B. Architecture  
Melville, NY, US

**Keenan May**  
Intern Architect  
B. Architecture  
Seattle, WA, US

**Brian McAlexander**  
Architectural Professional  
B. Architecture  
Cincinnati, OH, US

**Andrew McClure**  
B. Architecture, VPI & SU  
Raleigh, NC, US

**Jason Medina**  
B.S. Arch., Univ. of Texas  
Austin, TX, US

**Joel Miller**  
B. Arch., Temple University  
Bethel, VT, US

**Phillip Miller**  
M. Architecture  
Texas Tech. University  
Seagoville, TX, US

**Richard Morris**  
LEED AP  
B. Architecture  
San Juan, PA, US

**Gary Neville**  
Architectural Professional  
Urban Designer  
B.S. Architecture, RPI  
Venice, CA, US

**Aysar Odeh**  
Intern Architect  
M. Architecture  
Ellicott City, MD, US

## Architectural Professionals

### Scott Page

M. Architecture/Designer  
Berkeley, CA, US

### Marcela Pena

Principal  
B.S. Architecture  
Portland State University  
Portland, OR, US

### Francisco Planes

Arch. Consultant, Assoc., A.I.A.  
B.S. Architecture, CCNY-CUNY  
Bloomfield, NJ, US

### James Plasterer

B. Architecture  
Grant, FL, US

### Frank Plucinski

B. Architecture  
University of Houston  
Jonesboro, AR, US

### Jason Pratt

S.M.E., Arch. Consultant  
B.S. Arch., Univ. Texas  
Austin, TX, US

### Imran Qamar

Architect  
Masters in Architecture  
Concord, CA, US

### Suzy Rainey

Graduate Architect  
B. Arch., UC Berkeley, CA  
Hayward, CA, US

### Kent Rattan

M. Architecture  
Univ. of Texas at Austin  
Buena Vista, VA, US

### Michael Reuter

Architectural Professional  
Berkeley, CA, US

### Guillermo Rodriguez

Master of Architecture  
Miami, FL, US

### Rafael Rodriguez

Intern Architect  
B. Arch., Univ. of Miami  
Miami, FL, US

### Andres Rozo

Architectural Consultant  
Architecture  
Miami, FL, US

### Mojgan Saberi

B.S. Architecture  
Designer  
Oakland, CA, US

### Holly Sanchez

B. Architecture, Pratt Institute  
Tacoma, WA, US

### Arturo Santos-Martin

Architectural Consultant  
B. Architecture, NJIT  
Jersey City, NJ, US

### Will Schenck

Intern Architect, Assoc. AIA  
B. Architecture, BS ARCE  
St. Louis, MO, US

### Michael Seaman

Associate Member, AIA  
B. Arch., UC Berkeley  
Sacramento, CA, US

### German Serrano

Architect  
B.A. Architecture  
Lafayette, CA, US

### Reed Simpson

M. Architecture, Assoc. AIA  
University of Kansas  
Overland Park, KS, US

### Wendy Sitler

Designer  
B. Architecture  
Berkeley, CA, US

### Philip "Blake" Smith

B. Architecture,  
Oxford School of Architecture  
Master of Arch., Texas A&M  
Dallas, TX, US

### Thomas Spellman

Urban Activist  
Lake Geneva, WI, US

### Mathew Stackpole

B. Arch., Arch. Consultant  
B.A., Arch. & Planning  
Boulder, CO, US

### Walton Stowell

M. Architecture  
Savannah College of  
Art and Design  
Harpers Ferry, WV, US

### Rex Sucaldito

B.S. Arch./Designer  
B. Architecture  
Lake Worth, FL, US

### Bill Sullivan

B.A. Architecture  
University of Oregon  
Portland, OR, US

### Jeffrey Tam

B. Architecture  
Oakland, CA, US

### Brandon Tec

B. Architecture  
S. California Inst. of Arch.  
Hacienda Heights, CA, US

### William Tickell

Architectural Staff  
B.A. Architecture,  
Cal Poly SLO  
San Luis Obispo, CA, US

### Justin Touchstone

Project Manager  
B.A.  
Boise, ID, US

### Estevan Trujillo

Principal, B. Architecture  
Santa Fe, NM, US

### Edward Tsimmerman

M.A. Architecture  
Saint Louis, MO, US

### Henri Tso

B. Architecture  
Walnut Creek, CA, US

### Svea Tullberg

B. Architecture  
University of Virginia  
Rockland, ME, US

### Lawrence Turner

Contractor & Designer  
B.A. Architecture  
Cal Poly SLO  
Glendora, CA, US

### Jessica Ungos

Assoc. AIA  
B. Architecture  
Los Angeles, CA, US

### Luigi Vaccaro

Marano di Napoli, IT

### Azin Valy

Partner, Architecture  
New York, NY, US

### Gabriella Velardi

#### Ward

B. Architecture  
Pratt Institute  
Staten Island, NY, US

### Andrea Walhof-Grisham

Designer  
B.S. Architecture  
Truckee, CA, US

### Reuben Walters

LEED GA, Assoc. AIA  
B. Architecture  
Fort Worth, TX, US

### Nathan Watkins

Intern Architect, Assoc. AIA  
B. Architecture  
University of Houston  
Houston, TX, US

### Daniel Whitman

Masters of Architecture  
Illinois Institute of Technology  
Chicago, IL, US

### Jason Wilkinson

LEED AP  
B. Architecture  
University of Oregon  
Berkeley, CA, US

### Thomas Winterer

B.A. Architecture  
University of Minnesota  
Excelsior, MN, US

### Elwin Wong

B. Architecture  
Univ. of Cal., Berkeley  
Oakland, CA, US

### Gregg Workman

B.S. Architecture  
Ball State University  
Muncie, IN, US

### Kurt Worthington

Urban Planner  
M. Architecture  
San Francisco, CA, US

### Christopher Wright

Architectural Consultant  
B.S., B.A. Architecture  
Ben Lomond, CA, US

**Engineers (Degreed & Licensed – Active and Retired)****Philip Abbate**

P.E.  
B.S. ET  
Cal Poly Pomona  
Duluth, GA, US

**Tarif Abboushi**

P.E.  
M.S. Engineering, Economics  
Stanford University  
Houston, TX, US

**James Adams**

P.E., M.B.A., C.E.M.  
B.S.M.E.  
Jacksonville, FL, US

**Lynn Affleck**

P.E.  
B.S. Civil Engineering  
University of Utah  
Las Vegas, NV, US

**John Ahn**

P.E.  
B.S. Architecture, Engineering  
Cal Poly, SLO  
San Francisco, CA, US

**Fadhil Al-Kazily**

Engineer P.E.  
Ph.D. UC Berkeley  
Davis, CA, US

**Ahmad Alkhayyat**

P.E.  
Senior Civil Engineer  
B.S. Engineering  
Iowa S.U. & MBA U.L.V.  
Madera, CA, US

**Melissa Allin**

P.E.  
B.S.A.E.  
Comanche, OK, US

**Bart Anderson**

B.S. Mechanical Engineering  
University of Minnesota  
Blaine, MN, US

**Gary Anderson**

Registered P.E.  
M.S. Civil Eng, Duke Univ.  
B.S. Mechanical Engineering  
WPI Massachusetts  
Lakewood, CO, US

**Gerald Anderson**

B.S. Eng., Ph.D., Geog.  
Univ. Minnesota  
Colorado Springs, CO, US

**Paul Anderson**

P.E.  
B.S. Civil Engineering  
University of Illinois  
Baraboo, WI, US

**Raymond Andraka**

M.S. Electrical Engineering  
Univ. of Mass., Lowell  
North Kingstown, RI, US

**Christopher Andrassy**

P.E.  
B.S. University of Akron  
M.E. Texas A&M  
Bay Village, OH, US

**Roland Angle**

Civil Engineer  
B.S. UC. Berkeley  
Alameda, CA, US

**Antonio Arthay**

P.E.  
M.S., S.E., Illinois  
West Palm Beach, FL, US

**J. Ayres**

P.E.,  
Mechanical Engineer  
B.S.M.E.  
Santa Monica, CA, US

**Brian Baker**

B.S. Civil Engineering  
Oklahoma St. University  
Bethany, OK, US

**John Baker**

P.E., Ph.D.  
Las Vegas, NV, US

**Lester Baker**

Consulting Professional  
Civil Engineer  
BSCE Utah State University  
Ogden, UT, US

**H. Barton Bales**

P.E.  
M.S. Mech. Engineering  
University of Massachusetts  
Greenfield, MA, US

**Jeffrey Barker**

P.E.  
B.S., Arch. Engineering  
M.S. Math, Cal Poly  
Cayucos, CA, US

**Richard Barnes**

Bachelor of Civil Engineering  
Montana St. University  
Helena, MT, US

**Alton Barrett**

M.S. Chemical Engineering  
La Tech University  
Katy, TX, US

**Jason Barrick**

P.E., BSME  
University of Arkansas  
Sedona, AZ, US

**Mark Batten**

B.S. Architectural Engineering  
Kansas State University  
San Diego, CA, US

**W. Z. Baumgartner, Jr.**

P.E.  
B.E., Civil Engineering  
Vanderbilt University  
Franklin, TN, US

**Gene Baxter**

P.E.  
BSME University of Idaho  
MSAE Syracuse University  
Ph.D. M.E. Syracuse University  
Mesa, AZ, US

**Stanley Beattie**

P.E.  
B.S. Physics  
College of the Holy Cross  
Farmington Hills, MI, US

**Jeffrey Becker**

P.E.  
B.S. Welding Engineering  
Ohio State University  
Inwood, WV, US

**Roger Beecroft**

P.E.  
B.S. Civil Engineer, ASU  
Gilbert, AZ, US

**Abbas Behnambakhsh**

Professional Engineer  
B.S. C.E. NJ Inst. of Tech.  
New York, NY, US

**Michael Benefield**

Mechanical Engineer  
B.S. Mechanical Engineering  
San Anselmo, CA, US

**Christopher Bergier**

B.S. Aerospace Engineering  
Boston University, MA  
Worcester, MA, US

**Kyle Bickler**

B.S. and M.S. Civil and  
Environmental Engineering  
Univ. Cal., Davis  
Roseville, CA, US

**Roger Blair**

P.E.  
B.S. Humboldt St. University  
Nevada City, CA, US

**Robert Blanton**

Avionics System Des. Engineer  
BSME, U.T., Arlington, TX,  
Green Valley, AZ, US

**Larry Blilie**

B.S. Agricultural Engineering  
N. Dakota State University  
Fort Worth, TX, US

**Timothy Blunt**

Operations Distribution Eng.  
B.S.E.E. USC  
Grover Beach, CA, US

**Dan Bolke**

P.E.  
M.S. Civil Engineering  
Utah State  
American Fork, UT, US

**Chell Bosson**

P.E., B.S. ME,  
University of Minnesota  
Laguna Hills, CA, US

**Bruce Bowman**

PLS  
Chebeague Island, ME, US

**Greg Boyd**

P.E.  
B.S. & M.S. Civil Engineering  
University of Maryland  
Bethesda, MD, US

**Christopher Bradbury**

Licensed Structural Engineer  
BSCE & M. Eng., Civ. Eng.,  
Clarkson University  
San Jose, CA, US

**Thomas Brake**

P.E.  
M.S. Civil Engineering  
NM State University  
Silver City, NM, US

**Jeanne Brantingham**

P.E.  
B.S. Chemical Engineering  
University of Arkansas  
Groveland, FL, US

**Shawn Bratt**

P.E.  
B.S. Mechanical Engineering  
Cal Poly SLO  
San Ramon, CA, US

**Melanie Brethauer**

P.E.  
B.S. Civil Engineering  
University of Florida  
Asheville, NC, US

**Murray Brill**

P.E., C.E., M.E.  
BAE Engineering  
Rensselaer Polytechnic Inst.  
Los Angeles, CA, US

## Engineers

### Bob Briscoe

P.E.  
B.S. Engineering, UCLA  
Santa Rosa, CA, US

### Ronald Brookman

Structural Engineer  
B.S. & M.S. Engineering  
UC Davis  
Novato, CA, US

### Larry Brotherton

P.E.  
Civil Engineer,  
University of Cincinnati  
Cincinnati, OH, US

### Harry Brown

Project Scientist  
M.S., ME,  
Carnegie Mellon University  
Pittsburgh, PA, US

### Richard Browning

BSME,  
Washington University  
St. Louis, Pacific, MO, US

### John Brundage

P.E.  
B.S.E. Eng. Physics  
University of Michigan  
Ann Arbor, MI, US

### James Bruner

Major, USAF (Ret.)  
B.S. ASE  
University of Texas  
M.S. ASE, AFIT  
Oak Harbor, WA, US

### Enrique Bruque

B.S. Civil Engineering  
Oregon State University  
Fresno, CA, US

### George Bullwinkle

P.E.  
B. Mechanical Engineering  
Villanova University  
King of Prussia, PA, US

### Douglas Burke

Subject Matter Expert for  
Concrete Materials  
M.S. Test & Evaluation Eng.  
Ventura, CA, US

### Daniel Burns

P.E., BSCE  
Palm Beach Gardens, FL, US

### James Busby

P.E.  
BSME Mechanical Engineering  
Brandon, MS, US

### Donal Butterfield

R.A. & P.E.  
B.A., BCE, MUD  
New York, NY, US

### Jesse Bzura

P.E.  
B.S. Arch. Engineering  
University of Texas, Austin  
North Port, FL, US

### Richard Cabot

Ph.D., P.E.  
Ph.D. EE, M.S. Mechanics  
Rensselaer Polytechnic Inst.  
Lake Oswego, OR, US

### Greg Campbell

P.E.  
B.S. Civil Engineering  
Culver City, CA, US

### Robert Cannon

Sr. Project Engineer  
BSME U, CO, MS Mfg. Sys.  
University of Wisconsin  
Peoria, IL, US

### Joao Cardoso

Engineer  
M.S. Eng., Columbia Univ.  
Palo Alto, CA, US

### Ronald Cardwell

P.E.  
B.S. Civil Engineering  
WA State University  
Oklahoma City, OK, US

### Brent Carlson

P.E.  
B.S.M.E: U of Idaho  
MBA, Utah State  
Ogden, UT, US

### Arthur Carran

P.E.  
B.S. Aerospace Eng. Tech.  
Fairfield, OH, US

### André Carrington

B.A. Sci.,  
Systems Design Engineer  
University of Waterloo  
Thornhill, ON, CA

### James Carr

Ph.D., P.E.  
Professor, Geo. Engineering  
Reno, NV, US

### Jim Carucci

M.S. Mechanical Engineering  
Rensselaer Polytechnic Inst.  
New Hartford, NY, US

### David Cassel

P.E.  
B.S. Mechanical Engineering  
Oldtown, ID, US

### Jay Castino

P.E.  
BSMET CWU  
Bend, OR, US

### Kevin Champney

Brandon, MS, US

### Farook Chandiwal

B.S. Structural Engineering  
University of New Mexico  
Hoover, AL, US

### C. Charles

Engineer  
NY, NY, US

### Jim Charles

P.E.  
B.S. Geological Engineering  
Michigan Tech  
Grand Rapids, MI, US

### Gary Cheek

P.E., DSA  
B.S. Arch./Eng., BA Arch,  
Cal Poly San Luis Obispo  
Los Angeles, CA, US

### Carroll Childers

P.E.  
Mechanical Engineer,  
School of Engineering,  
Louisiana Tech.  
Partlow, VA, US

### James Chilton

B.S. Civil Engineering  
San Francisco State University  
Richmond, CA, US

### David Christmas

P.E.  
B.S. Civil Engineering,  
Rose-Hulman Inst. of Tech.  
Evansville, IN, US

### John Christopher

P.E., Esq.  
B.S. E. E.  
Santa Monica, CA, US

### Matthew Clarke

P.E., PLS  
B.S., Civil Engineering  
Cal Poly SLO  
Chico, CA, US

### Jerry Clasby

B.S. Mechanical Engineering  
University of Washington  
Enumclaw, WA, US

### Kers Clausen

Structural Engineer  
M.S. Engineering, UC Berkeley  
Emeryville, CA, US

### Oliver Clemons, Jr.

P.E.  
B.S. Civil Engineering  
University of Maryland  
Timonium, MD, US

### Mark Codispoti

B.S. Architectural Engineering  
Cal Poly St. Univ., SLO  
Tacoma, WA, US

### Attilio Colangelo

M.S. Mech. Engineering  
State Univ. of New York  
North Tonawanda, NY, US

### Jonathan Cole

P.E.  
B.S. Civil Engineering  
University Connecticut  
Englewood, FL, US

### Sean Colligan

Engineer (EIT)  
B.S. Electrical Engineering  
Pullman, WA, US

### Preston Collins

P.E.  
BSEE Electrical Power  
Systems NCSU  
Yelm, WA, US

### Russell Connors

Registered Civil Engineer  
B.S., U C Berkeley  
Santa Maria, CA, US

### Ben Coomes

P.E.  
B. Civil Engineering  
Georgia Tech  
North Port, FL, US

### Larry Cooper

P.E.  
M.S., Structural Engineer  
University of Illinois  
Plymouth, MI, US

### Wayne Coste

Engineer  
B.S. Electrical Engineering  
Tariffville, CT, US

### Lawrence Coudriet

BSME, MSME  
Carnegie Mellon University  
Sewickley, PA, US

### William Cox

P.E.  
B.S. Mechanical Engineering  
University of Kentucky  
Lexington, KY, US

### Mark Crane

B.S. Civil Engineering,  
Purdue University  
M.S. Civil Engineering,  
University of California  
Elk Grove, CA, US



## Engineers

### Kurt Criss

B.S. Mining Engineering  
Colorado School of Mines  
Elko, NV, US

### George Crook

P.E., M.S.  
Little Rock, AR, US

### Brian Crutchfield

P.E.  
B.S. Civil Engineering  
Virginia Polytechnic  
Inst. & State University  
Charlotte, NC, US

### Kevin Cubinski

B.S. Environ. Engineering  
University of Florida  
Gainesville, FL, US

### Frank Cullinan

P.E. Civil Engineer  
B.S. Civil Engineering  
McKinleyville, CA, US

### Robert Cummings

M.S. Civil Engineering  
Northeastern University  
Murrieta, CA, US

### William Cundiff

P.E., BSCE  
Whitinsville, MA, US

### Gil Danila

B.S. Civil Engineering  
Mapua Institute of Technology  
Castaic, CA, US

### David Dartford

B.A. Engineering Science  
Dartmouth College  
B. Engineering  
Thayer School of Engineering  
Houston, TX, US

### Gary Davis

Civil Engineer  
B.S. Engineering  
University of Georgia  
Fayetteville, AR, US

### Philip Day

P.E.  
BSCE, Virginia Tech.  
Kirkland, WA, US

### Jonathan Denman

B.S. Electrical Engineering  
Oregon State University  
Denver, CO, US

### Paul DePew

P.E.  
B.S. Civil Engineering  
University of Wyoming  
Cheyenne, WY, US

### Gerald DeVito

P.E., B.S.C.E.  
Wilmington, NC, US

### Matthew Di Lorenzo

P.E.  
M.E. Mechanical Engineering  
Rensselaer Polytechnic Inst.  
Weatherford, TX, US

### Juan Diaz

Professional Engineer  
B.S. Civil Engineering  
University of Florida  
Gainesville, FL, US

### Thomas Dickerman

Civil Engineer  
B.S., Civil Engineering  
Daly City, CA, US

### Richard Dickey

Electrical Engineer  
Ph.D., EE, Univ. of California  
San Luis Obispo, CA, US

### Vincent DiLeonardo

P.E., BME,  
University of Delaware  
Tampa, FL, US

### Michael DiMercurio

P.E.  
M.S., Mech. Eng., MIT  
Newtown, PA, US

### J. Steve Dodds

P.E.  
BSEE, Oregon State University  
McMinnville, OR, US

### Mark Dodds

P.E.  
M.S. Civil Engineering  
Kirkland, WA, US

### David Dorau

P.E.  
B.S. Iowa State University  
M.S. Massachusetts  
Institute of Technology  
Lenexa, KS, US

### Cristian Dragomir

B.S. Civil Engineering  
University of California  
Arroyo Grande, CA, US

### Michael Drinkwater

P.E.  
B.S. Civil Engineering  
Reno, NV, US

### David Dudley

P.E.  
B.S. Civil Engineer  
Sacramento, CA, US

### William Dumper

BEE and MEE,  
Polytechnic Institute of Brooklyn  
Amityville, NY, US

### Dr. Mohibullah Durrani

D. Eng. Sci. & Prof. Degree  
Mech. Eng., Columbia Univ.  
B. Sc. Eng. (Honors)  
Aligarh, Muslim University  
Germantown, MD, US

### Khalid Durrani

Senior Civil Engineer, P.E.  
M.S. Civil Engineering  
Tulane University  
Cincinnati, OH, US

### Steven Dusterwald

Structural Engineer  
BSCE Cooper Union, NYC  
Las Vegas, NV, US

### John Dwyer

P.E., Civil Engineer  
B.S. Watershed Sciences  
Lakewood, CO, US

### Lorenz Eber

P.E. Civil Engineering, WA  
B.S. Civil, M.S. Aeronaut. Eng.  
Stafford, VA, US

### Henry Edwardo

B.S. Civil Engineering  
Penn State University  
Pittsburgh, PA, US

### Ryan Eggers

EIT  
B.S.E. Civil Engineering  
Walla Walla University  
West Covina, CA, US

### Hantz Elalami

P.E.  
B.S. Research, Struct. Analyst  
Denver, CO, US

### Larry Elliott

P.E., BSEE,  
University of Idaho  
Moscow, ID, US

### Ghada Ellithy

Senior Geotechnical Engineer  
Ph.D., WVU  
Seattle, WA, US

### Todd Engle

B.S. Civil Engineering  
University of Minnesota  
Culver City, CA, US

### Alfredo Esguerra

P.E.  
B.S. Electrical Engineering  
Denver, CO, US

### Mikos Fabersunne

P.E.  
B.S. Chemical Engineering  
Univ. Cal., Davis  
Davis, CA, US

### James Fajcz

P.E. CMRP  
Civil Engineering  
Brunswick, GA, US

### Steven Faseler

P.E.  
M. Eng., Civil Engineering  
Texas A&M  
Bergheim, TX, US

### Peter Feneht

P.E.  
B.S. Civil Engineering  
U Wisconsin, Milwaukee  
Madison, WI, US

### Kenneth Fiallos

P.E., BSE  
Seffner, FL, US

### Michael Fillion

Sharon, MA, US

### Dennis Fischer

Engineering Consultant  
MSCE, BSCE  
Naperville, IL, US

### Mark Flamer

Ukiah, CA, US

### James Flikkema

Engineer (Ret.)  
B.S. Chemical Engineering  
Iowa State University  
Evansville, IN, US

### Richard Florentino

P.E.  
B.S. Civil Engineering  
Columbia University,  
M.S. Environmental Eng.  
University of Illinois  
Staten Island, NY, US

### Edward Floyd

P.E.  
B.S. Civil Engineering,  
Worcester Polytechnic Inst.  
Ludlow, VT, US

### Edmond Forbes

P.E. New Hampshire (Ret.)  
BSCE, EE  
Lyndeborough, NH, US

### Rick Fowlkes

P.E.  
BSCE & MBA  
Mesa, AZ, US



## Engineers

### Jim Fox

P.E. Civil Engineer  
B.S. Civil Engineering  
University of Maryland  
Bellingham, WA, US

### Gary Fox

P.E.  
B.S. Electrical Engineering  
Purdue University  
Scottsboro, AL, US

### Pat Fox

Engineering  
Beaverton, OR, US

### Enoch French, Jr.

P.E., P.L.S.  
B.S. LA Tech. University  
Bossier City, LA, US

### Robert Frias

P.E.  
Mech., Elec. Engineer  
Frias Engineering  
Mech./Elec., Univ. of Texas  
Arlington, TX, US

### Gary Friend

BSME, University of Iowa  
MSME, University of Illinois  
Lawson, MO, US

### Nick Funston

P.E.  
B.S. Engineering  
Sir George Williams University  
Brevard, NC, US

### Gustavo Garcia

B.S. Civil Engineering  
Polytech. Univ. of Puerto Rico  
San Juan, PR, US

### Kelly Gardner

Owensboro, KY, US

### John Garner

P.E.  
B.S. Civil Engineering  
Arizona State University  
Fort Collins, CO, US

### Chester Gearhart

P.E. (Ret.)  
B.S. Civil Engineering  
University of Missouri  
Kansas City, MO, US

### Lester Germanio

Structural Engineer  
B.S. Civil Engineering  
B. of Architecture, LSU  
Austin, TX, US

### Samuel Glasser

B.S. Petroleum Engineering  
UC Berkeley CA  
Bishop, CA, US

### Luke Gmazel

B. Civil/Environmental Eng.  
Lincoln City, OR, US

### Paul Gogulski

BSCE  
Beaufort, SC, US

### Robert Goldberg

(Ret.) Engineer/Teacher  
BEE, MSEE  
Jericho, NY, US

### Misael Gonzalez

EIT  
Engineering  
Carolina, PR, US

### Mark Goretsky

Plainview, NY, US

### Chris Graf

EIT  
B.S. Civil Engineering  
Louisville, KY, US

### Steven Grage

Account. Mgr., Tech. Sales  
B.S. Mechanical Eng., UIC  
Gurnee, IL, US

### Scott Grainger

P.E.  
Forensic Fire Protection Eng.  
B.S. Civil Engineering  
Mesa, AZ, US

### Spencer Graves

BS Aerospace Engineering  
University CO, Boulder  
MS Industrial Engineering  
University of Pittsburgh  
Overland Park, KS, US

### Alan Gray

P.E.  
B.A. Mech. Eng., SDSMT  
Omaha, NE, US

### John Gregel

Owner, JIG Eng. Services  
B.S.M.E.  
Bainbridge Township, OH, US

### Jason Griffin

P.E.  
B.S. Civil Engineering  
Washington, DC, US

### Jill Hacker

Engineer  
M.S. Civil Engineering  
Reston, VA, US

### Christopher Hahn

Engineering Consultant  
Mechanical Engineer  
Decatur, IL, US

### David Hajicek

P.E. in M.E. and E.E.  
B.S. Electrical Engineering  
Minnetonka, MN, US

### Darrell Hambley

P.E.  
BSEE UMC, Columbia Mo.  
Monroe, WA, US

### Fisal Hammouda

P.E.  
B.S., M.S. Aerospace  
Glen Ellyn, IL, US

### Chuck Hanna-Myrick

B.S., M.S. Electronics Eng.  
Montana State University  
Bozeman, WA, US

### Harvey Hansen

P.E.  
B.S.C.E.  
S. Dakota School of Mines  
Ketchikan, AK, US

### Kevin Harold

P.E.  
Portland, OR, US

### Michael Haughey

P.E.  
B.S. Mechanical Engineering  
Westminster, CO, US

### Gregory Haylock

P.E.  
B.S. Civil Engineering  
San Francisco St. University  
Manhattan Beach, CA, US

### Almond Hays

Consulting Environmental  
& Chemical Engineer  
B.S. Chemical Eng.  
Ph.D. Environmental  
Kingsbury, TX, US

### Allyn Hector

Fort Worth, TX, US

### Mark Helsten

London, ON, CA

### Dennis Henry

P.E.  
B.S. Civil Engineering  
University of Missouri  
Kansas City, MO, US

### Robert Hentschel

B.M.E. Georgia Tech.  
Sugar Land, TX, US

### Matt Hepp

P.E., B.S.M.E.  
Ridgeway, CO, US

### Chris Herron

Charlotte, NC, US

### Richard Herschlag

P.E.  
B.S. Civil Engineering  
Princeton University  
Easton, PA, US

### Michael Herzig

Civil Engineer (Ret.)  
B.S. Civil Engineering  
UC Boulder, Colorado  
Fort Collins, CO, US

### Richard Hibbard

P.E.  
BS Civil Engineering  
St. Martin's College  
Olympia, WA, US

### Erin Hibbard

Engineer Intern  
B.S. Mech. Engineer, USF  
Tampa, FL, US

### James Hicks

P. E.  
B.S. Chemistry  
Montgomery, TX, US

### Richard Hodel

B.S. Chemical Engineering  
University of Missouri  
Port Charlotte, FL, US

### Jeffrey Hoffman

Ph.D., M.S., B.S., P.E.,  
Mechanical Engineering  
U. of Wisconsin, Madison  
Anchorage, AK, US

### Brian Holdeman

P.E., B.S.M.E.  
Broken Arrow, OK, US

### Babak Honaryar

M.S. Mechanical Engineering  
University of Mass., Lowell  
Orinda, CA, US

### James Horne

P.E., Structural Engineer  
B.S. Civil Engineering,  
University of Toledo  
MS Civil Engineering,  
University of Illinois  
Denver, CO, US

### Bryan Houle

P.E., Principal  
Mechanical Engineer  
Edwards, CO, US

### James Houle

B.S. Chemical Engineering  
Purdue University  
Redwood Valley, CA, US

## Engineers

**Andrew Hoy**  
P.E.  
BSMET  
Milwaukee School of Engineering  
Milwaukee, WI, US

**David Huebner**  
P.E., BSCE  
Auburn Hills, MI, US

**Richard Humenn**  
P.E. Electrical Engineer  
Licensed NY, NJ, CT, D.C.  
New Jersey, NJ, US

**Mohammad Imran**  
MSME Mech. Eng.  
Ringwood, NJ, US

**Rob Jackson**  
P.E.  
B.S. Environmental Engineering  
Colorado St. University  
Boston, MA, US

**Peter Jamtgaard**  
S.E.  
B.S. Civil, Environ. Engineering  
Marquette University  
Professional Master in Structural  
Engineering, Illinois Inst. of Tech.  
Honolulu, HI, US

**Richard Jarrett**  
P.E.  
BSME, MIT,  
MSME, Northeastern University  
Limington, ME, US

**J Neil Jednoralski**  
P.E., NSPE, SAME  
B.S. Ag. Engineering  
UICC, Urbana, IL  
Salina, KS, US

**Philip Johnson**  
P.E.  
Consulting Engineer  
A.S. Engineering  
University of Cincinnati  
Phoenix, AZ, US

**Brandon Johnson**  
P.E., BSME  
Minneapolis, MN, US

**Grant Johnson**  
Engineer  
B.S. Civil Engineering  
Cal. State Tech.  
Fair Oaks, CA, US

**Robert Johnson**  
P.E., BSME  
Bellevue, WA, US

**Orin Johnston III**  
Oklahoma City, OK, US

**Michael Jones**  
P.E., BSME  
Cal State Poly, Pomona  
Boise, ID, US

**Murl Jones**  
P.E.  
B.S., M.S. Civil Engineering  
Univ. of Washington, Seattle  
Vancouver, WA, US

**Ralph Jordan**  
P.E.  
B.S. Civil Engineering  
Univ. of Alaska, Fairbanks  
Anchorage, AK, US

**Ed Jucevic**  
Engineer of Mines  
Colorado School of Mines  
M.S. Univ. of Nevada at Reno  
Sparks, NV, US

**Alex Kade**  
Engineer  
M.S., Wayne State  
Grosse Pointe Woods, MI, US

**Robert Kadera**  
P.E.  
B.S. EEE  
Lake Villa, IL, US

**Thomas Kahler**  
P.E.  
Bachelor of Engineering  
Drexel University  
Columbia, PA, US

**Jeffrey Keileh**  
M. Structural Engineering  
UC Berkeley  
San Francisco, CA, US

**Kenneth Keil**  
P.E.  
M.S. Civil Engineering  
Loveland, CO, US

**Stephen Keith**  
P. E.  
M.S. Stanford University  
Centennial, CO, US

**Jack Keller**  
Ph.D., P.E.  
Logan, UT, US

**John Kennedy**  
B.S. Mechanical Engineering  
CA St. University, Chico  
M.S. Engineering  
San Francisco State University  
Santa Rosa, CA, US

**Ahmad Khammash**  
P.E.  
MSCE University of Texas  
Arlington, TX, US

**Masood Khan**  
M.S. Newark College of Eng.  
New Jersey Inst. of Tech.  
Churchville, PA, US

**Dilip Khatri**  
Ph.D.  
Univ. of Southern California  
Pasadena, CA, US

**Ross King**  
Bachelor of Civil Engineer  
Univ. of Wisconsin, Madison  
Waco, TX, US

**Adam Klein**  
Engineer  
B.S. Civil Engineering  
UC Davis  
Redwood City, CA, US

**Edward Knesl**  
P.E., S.E.  
M.S. Engineering  
Phoenix, AZ, US

**Christopher Koch**  
P.E.  
B.S. EEAP  
Case Western Reserve Univ.  
Lima, OH, US

**Nick Kolev**  
P.E.  
Transportation Eng., Range  
Ph.D., Civil, Material Sci.  
U of St. Petersburg, Russia  
Bellflower, CA, US

**Bruce Kolinski**  
P.E.  
B.S. in Civil & Environ. Eng.  
Phoenix, AZ

**Dennis Kollar**  
P.E., Structural Engineer  
B.S. & Graduate Coursework  
West Bend, WI, US

**Peter Kosmoski**  
P.E.  
B.S.C.E.  
Engineering Consultant  
Spring, TX, US

**Wiley Krapf**  
Gills Rock, WI, US

**Dr. Adrain Krieg**  
Certified Manufacturing Eng.  
Bradenton, FL, US

**Thomas Lackey**  
P.E. Engineer  
B.S.C.E., UVM  
Stowe, VT, US

**Ronald Lawson**  
Engineering Consultant  
BSCE Akron University  
Dacula, GA, US

**Ron LeBlanc**  
P.E. Engineer  
Firestone, CO, US

**Lawrence LePere**  
P.E.  
B.S. Civil Engineering  
Union Coll., Schenectady, NY  
Brewster, NY, US

**Blake Lettenmaier**  
Garibaldi, OR, US

**John Lewelling**  
P.E.S.E.  
B.S. Aerospace  
Georgia Tech.  
Longmont, CO, US

**Brian Lewis**  
P.E.  
B.S. Civil Eng., Univ. of IL  
Louisville, IL, US

**Samuel Lewis**  
P.E., P.S.  
B.A. Structural Engineering  
Montgomery, OH, US

**Esteban Llop**  
MS Civil Engineering  
University of Puerto Rico  
San Juan, PR, US

**Nathan Lomba**  
P.E., S.E., M.ASCE  
B.S. Civil Engineering  
Univ. of Colorado  
Eureka, CA, US

**Brandon Long**  
Structural Engineer  
Civil Engineering  
Greenville, SC, US

**Ismael Lopez-Lara**  
M.S. Mechanical Engineering  
Univ. Pontificia Comillas  
(ICAI) Madrid, Spain  
Missouri City, TX, US

**Alfred Lopez**  
Structural Engineer  
B.S. Arch. Engineer  
Lawrence Tech. University  
Holly, MI, US

## Engineers

**Dianne Lopez**  
P.E.  
M.S. Computer Engineering  
UPR Mayaguez  
Bayamon, PR, US

**Richard Lopez**  
Mining Engineer, EIT,  
Engineering Consultant  
B.Sci., Mining Engineering  
Montana Tech.  
Cool, CA, US

**Timothy Lorencz**  
B.S. Mechanical Engineering  
Michigan Tech. University  
Ellicott City, MD, US

**Frank Lovelady**  
Civil Engineer  
BSCE  
Albuquerque, NM, US

**John Lovrovich**  
P.E.  
M.S. Civil Engineering  
Moses Lake, WA, US

**Ken Lucas**  
B.S. Civil Engineering  
University of Connecticut  
Underwood, WA, US

**Christopher Lund**  
P.E.  
B.S., Civil & Environmental  
UW, Madison  
Woodbridge, VA, US

**Anthony Lusich**  
P.E.  
B.S. Civil Eng.  
Univ. of Southern California  
San Jose, CA, US

**Christopher Lyon**  
Mech. & Elec. Engineer  
BSME & MSEE  
Bellingham, WA, US

**David MacKnight**  
P.E.  
B.S. Engineering  
LeTourneau University  
Greenville, TX, US

**Donald MacMillan**  
P.E.  
B.S. Civil Eng.,  
Northeastern University  
Middletown, CT, US

**Mike Maguire**  
P.E.  
MS, Mech/Aerospace Eng.  
UC Davis  
Livermore, CA, US

**Javed Malik**  
Houston, TX, US

**Samuel Malinowsky**  
Engineer

B.S. Civil Engineering  
University of Kansas  
Manhattan, KS, US

**Walter Mamak**  
B.S. Civil Engineering  
Illinois Inst. of Technology  
Sarasota, FL, US

**Robert Marceau**  
P.E., Structural  
M.S. Univ. Las Vegas  
B.S. Univ. of Connecticut  
KalisPELL, MT, US

**Ben Marshall**  
Senior Engineer, P.E.  
M.S. Chemical Engineering  
Jacksonville, FL, US

**Charles Marshall**  
PE, MSCE  
M.S., Civil Engineering, USC  
San Gabriel, CA, US

**John Mason**  
Engineer  
Ph.D. Elec. Eng., Michigan  
Portage, MI, US

**Richard Mathis**  
P.E.  
B.S. Elect. & Computer Eng.  
Oregon State Univ.  
Santa Cruz, CA, US

**Dan May**  
B.S. Civil Engineering  
Marquette University  
Racine, WI, US

**James May**  
P.E.  
M.S. Environmental Eng.  
Tulsa, OK, US

**Kenny Mayle**  
P.E.  
B.S. Electrical Engineering  
University of Michigan  
Chicago, IL, US

**David Mazzei**  
P.E.  
M.E. Civil Engineering  
Mass. Institute of Technology  
Cumberland, RI, US

**Rich McCampbell**  
B.S. Chem.  
Milton, MA, US

**Allan McClure**  
P.E.  
B. Mechanical Engineering  
Rockledge, FL, US

**William McDermott**  
B.S. Engineering  
CMA, Vallejo, CA  
Las Vegas, NV, US

**Mike McDonald**  
Engineer  
B. Eng. Hons, Engineering  
Royal Naval Engineer  
New York, NY, US

**Thomas McLaughlin**  
P.E. Consulting Engineer  
B.S.C.E. Univ. Florida  
Seffner, FL, US

**Allen McLemore**  
P.E.  
B.S. Civil Engineering  
Auburn University  
Springville, AL, US

**Patrick McMahon**  
MSBE MSN ANP  
M.S. Engineer  
Polytechnic Univ. NY  
Harriman, NY, US

**Jeffrey McNabb**  
P.E. Engineering Consultant  
B.S., M.S. Civil Engineering  
University of Minnesota  
Bozeman, MT, US

**Charles Mencke**  
Composite Design Engineer  
B.S. Mechanical Engineer  
Univ. of Idaho  
Seattle, WA, US

**Steven Merritt**  
P.E.  
M.S. Structural Engineering  
UC San Diego  
San Diego, CA, US

**Donald Meserlian**  
P.E.  
M.S.M.E.  
N Caldwell, NJ, US

**Bill Metcalf**  
P.E.  
B.S. Eng. Texas A&M  
Athens, TX, US

**Daniel Metz**  
P.E.  
B.S. Civil Engineering  
Oviedo, FL, US

**Tom Mifflin**  
EIT  
Idaho State University  
Antigo, WI, US

**Andrew Miller**  
P.E.  
Bach. of Civil Engineering  
Georgia Institute of Tech.  
Melbourne, FL, US

**Barry Miller**  
P.E.  
Mechanical Engineer  
Hinsdale, NY, US

**Joseph Miller**  
P.E., B.S.M.E.  
Manchester, MO, US

**Robert Miller**  
P.E.  
B S Engineering  
Northern Arizona University  
Mercury, NV, US

**Matthew Millias**  
P.E.  
B.S. Civil Engineering  
Syracuse University  
North Syracuse, NY, US

**Andrew Mills**  
Principal Engineer, M.S. Eng.  
Lower Gwynedd, PA, US

**Dan Mills**  
AIA, PE  
B.S. Architectural Engineering  
Lake Ozark, MO, US

**Jesse Milonovich**  
Engineer  
B.S. Civil & Environ. Eng.  
Clarkson Univ.  
Round Rock, TX, US

**Chuck Minne**  
P.E.  
Chemical Engineering  
UC Berkeley  
Danville, IL, US

**Edward Misch**  
B.S. Engineering  
Purdue University  
Munster, IN, US

**John V Mizzi**  
P.E., B.E.E.  
Poughkeepsie, NY, US

**Ronald Molik**  
Senior Engineer (Ret.)  
UCLA M.S. Engineering  
Rancho Palos Verdes, CA, US

**Michael Moore**  
P.E.  
BS Civil Eng. Tech,  
MSU, Northern  
Havre, MT, US

## Engineers

### Peter Morse

P.E., Mechanical Engineer  
B.S., Mech. Engineering  
B.A., Journalism  
Tucson, AZ, US

### Charles Mortenson

P.E. (Ret.)  
Engineering (EE), U of Wis.  
Iron River, WI, US

### Tyrone Morton

P.E.  
B.S. Electrical Engineering  
Univ. of New Orleans  
New Orleans, LA, US

### Keith Moser

P.E.  
M.S. Geotechnical Engineering  
VA Tech.  
Fairfax, VA, US

### David Motto

Engineer, Patent Agent  
B.S. Marine Eng., USMMA  
Ellington, CT, US

### Charles Moulton

M.S. Engineering  
University of Tennessee  
Knoxville, TN, US

### Robert Moyer

P. E.  
B.S. Engineering  
Penn State  
Rochester, NY, US

### Brian Mullin

P.E., B.S., Civil Engineering  
UNF  
Jacksonville, FL, US

### Edward Munyak

P.E., BSME  
Catholic Univ. of America  
Los Altos Hills, CA, US

### Michael Nagy

B.S. Civil Engineering  
Rutgers University  
Staten Island, NY, US

### Alex Nelson

B.S. Civil Engineering  
Montana State University  
Bozeman, MT, US

### Arthur Nelson

P.E.  
M. Sci., Structural Eng.  
Northeastern University  
Seekonk, MA, US

### Jason Nelson

P.E.  
M.S. Civil Engineering  
W. Virginia University  
Bridgeport, WV, US

### Kent Nelson

P.E.  
Battle Ground, WA, US

### Robert Nelson

P.E.  
BSME, UC Berkeley  
Canyon, CA, US

### Sean Neprud

P.E.  
B.S. Engineering  
UC Berkeley  
San Francisco, CA, US

### Fred Nguyen

P.E.  
M.S. Mechanical Engineering  
Stevens Inst. of Technology  
Maplewood, NJ, US

### Lee Niems

P.E. (Ret.)  
BSME, IIT  
Henderson, NV, US

### Chris Nubbe

P.E.  
M. Civil Engineering  
Olympia, WA, US

### William Nugent

P.E.  
BEE, Polytechnic University  
Eastham, MA, US

### Richard Nutt

Structural Engineer  
M.S. Structural Engineering  
CSUS  
Orangevale, CA, US

### Kathleen O'Brien

P.E., BSCET  
Simi Valley, CA, US

### Kamal Obeid

S.E., P.E.  
MSCE, UC Berkeley  
Fremont, CA, US

### William Odell

P.E.  
BS Mech. Eng. Tech.  
Surprise, AZ, US

### Shane Oden

B.S. Environmental Eng.  
Oregon St. University  
Marysville, WA, US

### Gerald Olson

P.E.  
Mechanical Engineer  
University of Cincinnati  
Waltham, MA, US

### Basil Orechwa

Senior Design Engineer  
Beaver Dam, WI, US

### Ali Oskoorvouchi

Ph.D.  
Prof. Geotechnical Engineering  
San Jose, CA, US

### Calvin Overdorff

P. E.  
B.S. Civil Engineering  
Windber, PA, US

### James Overstreet

P.E.  
B.S. Electrical  
Mississippi State  
Diamondhead, MS, US

### Joe Palen

Senior Research Engineer  
BSCE, UC Davis  
Davis, CA, US

### Curtiss Palin

P.E.  
M.S. Engineering  
Fort Collins, CO, US

### Randy Palmer

Mechanical Engineer  
BSME  
Duvall, WA, US

### Mo Palmowski

P.E.  
B.S. Mechanical and  
Industrial Engineering  
Clarkson University  
Tollson, AZ, US

### Pedro Panzardi

M.E. Environmental Eng.  
Rensselaer Polytechnic Inst.  
Gurabo, PR, US

### Kirk Pape

P.E., P.L.S.  
Surveying Engineering  
Iowa State University  
Rochester, MN, US

### Ramon Parchment

EIT  
B.S. Civil Engineering  
New York University  
Tandon School of Engineering  
NY, NY, US

### James Parker

P.E.  
B.S. Civil Engineering  
Carnegie Mellon University  
Oceanside, CA, US

### Robert Parma

BSME  
University of Texas, Austin  
Dallas, TX, US

### Mario Parra

P.E.  
B.S. Civil Engineering, UK  
Tampa, FL, US

### Frederic Parrish

P.E.  
BSME  
Cave Creek, AZ, US

### Hamendra Patel

P.E.  
Marietta, GA, US

### Raymond Pate

P.E.  
B.S. Civil Engineering  
N. Carolina State  
Kill Devil Hills, NC, US

### Charles Pegelow

P.E., Civil Engineer  
Houston, TX, US

### Barton Peters

P.E.  
B.S. EE, BA Poli. Sci.  
San Gabriel, CA, US

### Dennis Peyton

P.E., B.S.  
Sanger, CA, US

### Marshall Pfeiffer

B.S. Civil Engineering  
Notre Dame University  
San Diego, CA, US

### Joseph Phelan

P.E.  
Mechanical Engineering  
Inwood, NY, US

### Bruce Phillips

P.E.  
M.S. Engineering  
University of Tennessee  
Austin, TX, US

### Mark Phillips

Mechanical Engineer (Ret.)  
BSME, Cal Poly, SLO  
Santa Rosa, CA, US

### Norman Poire

Senior Aerospace Engineer  
BSME  
Denver, CO, US

### Martin Poole

P.E., B.S.C.E.,  
MO Univ. of Sci. & Tech.  
Kennesaw, GA, US

## Engineers

**Gerald Poore**

Engineer  
BSEE  
Miami, FL, US

**Tim Potyraj**

Plano, TX, US

**William Preston**

B.S. Civil Engineering  
Georgia Institute of Technology  
Guaynabo, PR, US

**Michael Prinz**

P.E.  
B.S. Env. Resources Eng.  
Humboldt State University  
Santa Rosa, CA, US

**John Pryor**

Structural Engineer  
M.S.S.E., U.C. Berkeley  
Emeryville, CA, US

**L. Pyeatt**

P.E., BSCE  
Malibu, CA, US

**Guillermo Ramos**

M.S. Ind. and Management Eng.  
Rensselaer Polytechnic Inst.  
M Eng. in Trans. Eng., RPI  
Albany, NY, US

**George Rand**

P.E.  
B.S. University of Vermont  
Rochester Hills, MI, US

**James Randall**

Engineer  
B.S. Electrical Engineering  
Vancouver, WA, US

**Robert Randall**

P.E.  
B.S. Nav. Arch & Marine Eng.  
MIT  
Mohegan Lake, NY, US

**Steven Rathbun**

P.E. & L.S.  
B.S. Mining Engineering,  
SDSM&T  
Salt Lake City, UT, US

**Ryan Rayda**

P.E.  
M.S. Civil Engineering  
University of Wyoming  
Bismarck, ND, US

**Robert Regl**

Ph.D. Engineer  
Lehigh University  
Hattiesburg, MS, US

**Thomas Rehm**

P.E.  
Ph.D. Chemical Engineering  
Humble, TX, US

**Steven Reiser**

Chemical Engineer  
Westminster, CO, US

**Oswald Rendon-Herrero**

Engineering Consultant  
AAS, BS, MS,  
Ph.D., Civil Engineer  
Starkville, MS, US

**Ephraim Resnick**

B.S. Electrical Engineering  
New York University  
New York, NY, US

**Cres Reyes**

P.E.  
B.S. Civil Engineering  
University of the East  
Chino Hills, CA, US

**John Rice**

P.E. (Ret.)  
MEE, M. Civil Engineering  
Penn State  
Manassas, VA, US

**William Rice**

P.E.  
M.S. Civil Engineering  
Cornell University  
Randolph Center, VT, US

**Daniel Richard**

P.E., LS (Ret.)  
B.S. Chemical Engineering  
Eagar, AZ, US

**Mike Riley**

Engineer  
B.S. Civil Engineering  
University of Maine  
Orono, ME, US

**Bret Rinehart**

P.E.  
B.S. Civil Engineering  
University of Utah  
Eureka, CA, US

**David Roberts**

P.E.  
Engineer and General Contractor  
M.S.C.E. CSU Long Beach  
Fountain Valley, CA, US

**Philip Roberts**

B.S. Mechanical Engineering  
Magna Cum Laude,  
Michigan State University  
Southfield, MI, US

**Thomas Robertson**

B.C.E.  
Georgia Institute of Technology  
Augusta, GA, US

**Andrew Rodriguez**

B.S. Mechanical Engineering  
University of Texas  
San Antonio, TX, US

**Daniel Rogers**

Engineering Consultant  
Mechanical Engineering  
Fairfax, VA, US

**Richard Rogers**

Mechanical Engineering  
E. Northport, NY, US

**Thomas Rogers**

P.E.  
B.S.C.E., University of Florida  
Oviedo, FL, US

**Tim Rohach**

P.E.  
Mechanical Eng. MSME  
Sugar Land, TX, US

**Richard Rollo**

P.E.  
B.S. Civil Engineering  
M. Engineering  
Englewood, FL, US

**Gerald Romero**

Structural Engineer (Ret.)  
B.S. Engineering  
New Mexico State University  
Dallas, TX, US

**Robert Rooks**

P.E., Principal Engineer  
B.S., M.S. Civil Engineering  
Kailua, HI, US

**Robert Rosa**

P.E., Electrical Engineer,  
Computer Scientist  
BSEE, BS Comp. Sci.  
Edmond, OK, US

**Jim Rose**

P.E.  
B.S., M.S. Engineering  
Dothan, AL, US

**Reza Salami**

Ph.D.  
Prof. of Civil & Env. Eng.  
Ph.D. University of Arizona  
Greensboro, NC, US

**Sam Sallome**

P.E., Engineer  
BSEE Rochester Inst. of Tech.  
Richmond, VA, US

**Sarah Scarborough**

Atlanta, GA, US

**John Schaefer**

Consulting Engineer  
Ph.D. Stanford  
M.S. San Jose State  
B.S. MIT  
Arcata, CA, US

**Fred Schaejbe**

Civil Engineer  
M.S. Structural Engineer  
University of Illinois  
West Bend, WI, US

**Robert Schasse**

P.E.  
BSME Univ. of Wisconsin  
Danville, VA, US

**Norman Scheaffer**

M.S. Chemical Engineering  
Cornell University  
Bellingham, WA, US

**Derek Schenavar**

P.E., Principal Engineer  
BSCE Univ. Central Florida  
West Palm Beach, FL, US

**Steven Schennum**

P.E., Ph. D.  
Spokane, WA, US

**Steven Scheye**

Principal Engineer  
B.S., Chem. Eng., NCSU  
Martinez, CA, US

**Joshua Schmidt**

P.E.  
B.S. Mechanical Engineering  
Texas A&M  
Fort Worth, TX, US

**Rich Schnoor**

Engineer, MSME  
Jupiter, FL, US

**Kurt Schoch**

Engineer  
B.S. Mechanical Engineering  
Amarillo, TX, US

**John Schofield**

P.E.  
B.S. Environmental Eng.  
Penn State  
Lexington, VA, US

**George Schroeder**

P.E.  
B.S. Electrical Engineering  
Oregon State University  
Sherwood, OR, US



## Engineers

**Robert Schuerger**  
B.S. Electrical Engineering  
University of Akron  
Los Angeles, CA, US

**Mary Schuler**  
Engineer  
Engineering Technician  
Metallurgy & Mech. Design  
Virginia Beach, VA, US

**Ronald Schultz**  
B.S. Electrical Engineering  
Wayne State University  
Detroit, MI, US

**Mark Sebesta**  
P.E.  
B.S. Civil Engineering  
Las Vegas, NV, US

**Patricia Seitz**  
P.E.  
Arch. Eng., Structural  
Lititz, PA, US

**John Shanahan**  
P.E., Electrical Engineer  
Rancho Cucamonga, CA, US

**Michael Sherber**  
P.E.  
B.S. Civil Engineering  
Princeton University  
M.S. Mechanical Engineering  
Georgia Tech.  
Avon, CT, US

**Richard Sheridan**  
P.E.  
Civil Engineering  
New York, NY, US

**Christopher Sherman**  
Senior Engineer  
B.S. Engineering  
University of Florida  
Auburn, CA, US

**Daniel Shields**  
B.S. Electrical Eng. Tech.  
Southern Polytechnic St. Univ.  
Marietta, GA, US

**John Shively**  
Engineer  
B. of M.E.  
Berkeley, CA, US

**Andrea Shuman**  
P.E.  
B. Architectural Engineering  
Penn State University  
Teaneck, NJ, US

**Dale Silbernagel**  
Engineer  
B. Chemical Engineering  
Greenwood Village, CO, US

**Clayton Simmons**  
P.E., Associate Engineer  
B.S.C.E.,  
Brigham Young University  
Santa Rosa, CA, US

**John Simon**  
P.E.  
B.S. Agricultural Engineering  
University of Maine  
Hampden, ME, US

**Roger Simpson**  
P.E.  
Santee, CA, US

**John Sinerchio**  
B.S. Electrical Engineering  
California State University  
Fresno, CA, US

**Amit Singh**  
Ph.D., Esq.  
Ph.D. Electrical Engineering  
North Andover, MA, US

**Pete Slocum**  
S.E.  
M.S. Engineering  
San Jose State University  
Eugene, OR, US

**Edwin Smith**  
Engineer, Land Surveyor  
M. Architecture  
Morgan State University  
Baltimore, MD, US

**Marvin Smitherman**  
P.E., Civil Engineer  
B.S. Civil Engineering  
UC Berkeley  
Fremont, CA, US

**Jacob Smith**  
B.S. Civil Engineering  
Michigan Tech. University  
Apex, NC, US

**Monica Smith**  
P.E.  
B.S. Civil Engineering,  
University of Iowa,  
Master of Engineering,  
Water Resources Eng.,  
Colorado State University  
Independence, IA, US

**Jonathan Smolens**  
P.E.  
B.S. CU Boulder  
Boulder, CO, US

**Richard Snider**  
P.E., BSEE  
University of Texas, Austin  
Dallas, TX, US

**Robert Sogge**  
P.E., Civil Engineer  
Ph.D. Civil Engineering  
University of Arizona  
Tucson, AZ, US

**Ahmad Solomon**  
P.E.  
Petroleum Consultant (Ret.)  
B.S. Petroleum Eng., TU  
Houston, TX, US

**Ronald Southard**  
P.E.  
B. Arch. E. & B.S. E.  
Ops-Const.; ISU  
Buena Vista, CO, US

**John Sparnicht**  
P.E.  
Civil Engineer  
Dayton, NV, US

**James Speedie**  
Engineer  
BSCE, MSCE,  
Wayne State Univ., Detroit  
Phoenix, AZ, US

**Mitchell Stein**  
P.E.  
M.S. Civil Engineering  
University of Texas, Austin  
Austin, TX, US

**Michael Stephens**  
P.E.  
B.S. Geological Engineering  
Welling, OK, US

**Christopher Stevens**  
P.E., BSCE  
Roseville, CA, US

**James Stiadly**  
Ph.D., P.E.  
San Diego, CA, US

**John Stoltenberg**  
P.E., BSME  
Elkhart Lake, WI, US

**Muriel Strand**  
P.E., B.S. SISU, M.S. UCB  
Mechanical Engineering  
Sacramento, CA, US

**Frank Stratton**  
Engineer, Ph.D., BCEE  
Civil Engineering, Ph.D.,  
Stanford University  
Eastsound, WA, US

**Bernard Stroh**  
B.S. Civil/Structural Eng.  
North Dakota State University  
Kula, HI, US

**Peter Stutz**  
Electrical Eng. (Ret.)  
BSEE, TWU Switzerland  
Chelan, WA, US

**Bill Sublette**  
P.E.  
Ph.D. Civil Engineering  
University of Arizona  
Las Vegas, NV, US

**Roy Svensson**  
B.S. Civil Engineering  
Clarkson College of Tech.  
Tonawanda, NY, US

**James Symanski**  
B.S. Civil Engineering  
U.S. Military Academy  
M.S. Civil Engineering  
University of Missouri  
Alexandria, VA, US

**Brandon Taylor**  
B.S. Biological Engineering  
Louisiana State University  
Baton Rouge, LA, US

**Joseph Testa**  
P.E., Civil Engineer  
BSCE, RPI  
Thousand Oaks, CA, US

**Peter Theodorakakos**  
Mechanical Engineer  
B.S. and M.S.  
Camden, AR, US

**Paul Thomas**  
P.E.  
M.Arch., Structural Eng.  
Tucson, AZ, US

**Robert Thomas**  
BS Civil Engineering  
Texas A&M  
Charlotte, NC, US

**Steve Thomas**  
P.E., S.E., B.S.C.E.  
Pampa, TX, US

**Mark Thomey**  
P.E.  
BSCE University of Arkansas  
Arab, AL, US

**Allen Thompson**  
P.E.  
B.S. Civil Engineering  
The Citadel, The Military  
College of S. Carolina  
Miami, FL, US

**Nicholaus Thompson**  
B.S. Mechanical Engineering  
Boise State University  
Kuna, ID, US



## Engineers

### Alexander Thorp

P.E., P.L.S.  
B.S. Civil Engineering WPI  
Great Barrington, MA, US

### Richard Thurmond

BSEE, MSCENG,  
University of So. California  
Cobb, CA, US

### Brian Timmins

M.S. Environmental Eng.  
Oregon State University  
Washougal, WA, US

### Craig Tiras

P.E.  
B.S. Engineering  
University of Texas, Austin  
Houston, TX, US

### Ifan Toor

Ph.D. Chemical Engineering  
University of Florida  
Plano, TX, US

### David Topete

S.E.  
B.S. Civil Engineering,  
Santa Clara University  
San Francisco, CA, US

### Bogos Torikian

Registered Geotechnical Eng.  
Masters  
Forest Knolls, CA, US

### Clark Townsend

Civil Engineer, BSCE CSU  
Fort Collins, Colorado  
Sacramento, CA, US

### Dianne Treichler

CA-Licensed Civil Engineer  
BSE, University of Michigan  
Loleta, CA, US

### Paul Trousdale

Structural Engineer  
M.S.E., U.C. Berkeley  
Emeryville, CA, US

### Leslie Tyson

P.E.  
M.S. Engineering  
Michigan State University  
Denver, CO, US

### Frank Ulisse

P.E.  
B.S. Electrical Engineering  
Rutgers University  
Egg Harbor Township, NJ, US

### Harry Utti

P.E.  
B.S. Earth Sciences  
Oregon State University  
Seaside, OR, US

### Michael Vail

P.E., Engineering Consultant  
B.S. Civil Engineering  
Springfield, IL, US

### Thomas Valentino

P.E.  
BME Georgia Tech.  
MME Univ. of Houston  
Richland, WA, US

### Rocky Van Asten

P.E.  
BSNE UW-Madison  
Madison, WI, US

### James Van Langen

P.E., Mechanical Eng., PA  
B.S. US Merch. Marine Acad.  
Doral, FL, US

### Ryan Van Leuven

Eng. Intern, Grad. Student  
B.S. Civil Engineering  
Boise State  
Logan, UT, US

### Jeffrey Vandiver

P.E.  
B.S. Civil Eng. Technician  
Southern Polytechnic St. Univ.  
Atlanta, GA, US

### Brian Vaughn

P.E.  
B.S. Electrical Engineering,  
MO Univ. of Science & Tech.  
M.S. Eng. Management  
Northwestern University  
Barrington, RI, US

### J Kevin Vogel

B.S. Mechanical Engineering  
University of Santa Clara  
Post Falls, ID, US

### John Wagner

P.E., Elec. Eng. (Retired)  
B.S. Math, Grad. School E.E.,  
Univ. of Kentucky  
Sun City, AZ, US

### Charles Walker

P.E.  
BSME Texas A&M U  
Rosharon, TX, US

### Daniel Walsh

P.E.  
B.S. Chemical Engineering  
SUNY Buffalo  
Rochester, NY, US

### Robert Walter

B.S. Civil Engineering  
Old Dominion University  
Vienna, VA, US

### Robert Waser

P.E. (Ret.)  
BSME Duke University  
MSME Maryland University  
Washington, DC, US

### David Weimer

P.E.  
B.S. Electrical Engineering  
Des Moines, IA, US

### John Westmoreland

P.E.  
B.S. Electrical Engineering  
Lamar University  
San Jose, CA, US

### Jon-Eric White

P.E.  
B.S. Civil Eng., Const. Mgt.  
University of Massachusetts  
Newburyport, MA, US

### Michael White

B.S. Civil Engineering  
Portland State University  
Vancouver, WA, US

### Terry White

Mechanical Engineer  
BSME, Rose-Hulman  
Floyds Knobs, IN, US

### William Whitney

Bachelor of Science,  
Queen's Univ. at Kingston  
Ontario, Canada  
St. Albert, AB, CA

### Andy Wickerson

P.E.  
M.S. Oregon State University  
Englewood, FL, US

### Thomas Wilczek

P.E.  
BSCE, UC Davis  
Portland, OR, US

### Paul Wilkerson

Engineer  
New Mexico State  
San Angelo, TX, US

### Susan Williams

Engineer  
M.S. Civil Engineering  
California State University  
Huntington Beach, CA, US

### Bill Wilson

Birmingham, AL, US

### Kenneth Wilson

P.E.  
BSCE, US Coast Guard Acad.  
Carmel, IN, US

### Rhett Winter

P.E., LEED AP  
B.S. Civil Engineering  
Oregon Tech.  
Bellingham, WA, US

### Jenny Wong

P.E.  
B.S., C.E. Portland State Univ.  
Clovis, CA, US

### Douglas Woolf

Chonhassen, MN, US

### Don Wornock

P.E., BSEE & BSCE  
University of Arkansas  
Texarkana, AR, US

### Kenneth Wrenn

P.E.  
B.S. Civil Engineering NCSU  
Durham, NC, US

### Travis Wren

P.E.  
Bachelor, Master's Degrees  
University of Missouri  
Civil, Structural Engineering  
Carmel, IN, US

### Donald Wright

P.E.  
B.S. Electrical Engineer  
Houston, TX, US

### Richard Yale

Engineer  
B.E. Civil Engineering USC  
Desert Hot Springs, CA, US

### Carlos Yermoli

M.S. Civil Engineering MIT  
Miami, FL, US

### Wayne Young

P.E.  
Civil Engineering  
Arvada, CO, US

### Gregory Yust

P.E., B.S. Aero Engineering  
Univ. of Notre Dame  
Glastonbury, CT, US

### Steven Zelvin

P.E.  
M Civil Engineering,  
Rice University  
Dallas, TX, US

### Jue "Joanna" Zhang

P.E., S.E. UC Berkeley  
San Francisco, CA, US

### David Zuniga

P.E., B.A. Arch. Engineering  
Univ. of Texas  
San Antonio, TX, US

**Engineering Professionals (Degreed Only)**

**Anthony Acocella**  
Mechanical Engineer  
Masters in Mech. Eng  
Marlton, NJ, US

**Ken Adam**  
Senior Mfg. Eng.  
B.S. Ceramic Eng.  
Chanhassen, MN, US

**Fred Aeilts**  
BSEE  
Phoenix, AZ, US

**Mohamed Ahmad**  
Logic Design Eng.  
M. in Elec., Comp. Eng.  
Folsom, CA, US

**Mohammad N. Ahmed**  
Civil Engineer  
Biotech Eng.  
JNT Univ., India  
Dubai, UAE

**Saba Ahmed**  
Eng. at Intel Corp.  
B.Sci. Engineering,  
Portland St. Univ. OR  
Portland, OR, US

**Matthew Akers**  
B.S. Mat. Sci. and Eng.,  
North Carolina St. Univ.  
Wellford, SC, US

**Monojir Ali**  
B.S. Comp. Eng., Math.  
Paterson, NJ, US

**Michael Aliotta**  
B.S. Elec. Eng.  
Fort Pierce, FL, US

**Mark Allen**  
Ph.D. Eng.,  
Univ. of Penn.  
San Diego, CA, US

**Brad Andersen**  
BS Mech. Eng.  
Madison, WI, US

**Ed Anderson**  
Eng. Consultant  
B.S. Engineering  
Los Gatos, CA, US

**John Anderson**  
Ph.D. Professor  
Ph.D. Astronautics, M.I.T.  
Minneapolis, MN, US

**John Anderson**  
Doctoral Candidate  
BSE, MS, Eng.,  
Univ. of Michigan  
Okemos, MI, US

**Malcolm Anderson**  
B.S. Mech. Eng.,  
CA St. Polytechnic  
Univ. at Pomona  
Wildomar, CA, US

**Michael Anderson**  
Mining Engineering  
Fairbanks, AK, US

**Scott Anderson**  
M.S. Electrical Eng.  
Meridian, ID, US

**Sean Anderson**  
B Engineering,  
Stevens Inst. of Tech.  
Jersey City, NJ, US

**Tikisa Anderson**  
Eng. Senior Staff  
BSEE MSE,  
UC San Jose  
MB, Univ. Phoenix  
Union City, CA, US

**James Andrews**  
B.S. Aerospace Eng.  
Jarrell, TX, US

**Ben Andrus**  
B.S. Mech. Eng. Tech.  
Arizona St. Univ.  
Tempe Arizona  
Glendale, MT, US

**Kurt Angel**  
Member Tech. Staff  
BSEE  
Bryson City, NC, US

**Ron Angell**  
Civil Eng. B.S.C.E  
Univ. of Michigan,  
Ann Arbor, MI  
Fort Myers Shores, FL, US

**Scott Anstey**  
Engineering Staff,  
B.S. Engineering  
Clemson Univ.  
Catawba, SC, US

**Andreas Apostolopoulos**  
BE Civil Engineering  
City College of NY  
Erie, PA, US

**Arman Arashvand**  
BSEE, Univ. of TX Dallas  
Dallas, TX, US

**Rod Armstrong**  
B. Eng. (Australia)  
Cupertino, CA, US

**Juan Arroyo**  
BS Elec. Eng.  
Capitol Tech. Univ.  
Portland, OR, US

**Joshua Ashenberg**  
Ph.D.  
Aerospace Scientist  
Chelmsford, MA, US

**Gilbert Asher**  
BS Elec. Eng.  
Oklahoma St. Univ.  
Erie, PA, US

**Aaron Ashkinazy**  
Dr. of Comp. Science  
Roosevelt, NJ, US

**Heidi Ashwell**  
B.S. Aeronautical Eng.  
Mech. Eng., Rensselaer  
Polytechnic Institute  
Las Vegas, NV, US

**Steven Asimow**  
Aerospace Str. Eng. (Ret.)  
BSME, CA State Univ., LA  
Glendale, CA, US

**Hani Atassi**  
B.S. Chem. Eng.  
Univ. of Texas  
Darien, IL, US

**Marc Auville**  
Eng. Consultant  
Masters in Telecom.  
Arvada, CO, US

**David Avina**  
Engineer, BSME  
Bay St. Louis, MS, US

**Ram Avtar**  
Bach. of Tech.  
Mech. Engineering  
Indian Inst. of Tech.,  
Kharagpur, India  
Norcross, GA, US

**Basel Azzam**  
Engineer  
MSOE, NYU Polytech  
Old Tappan, NJ, US

**Jesse Babb**  
EIT, LEED AP, BSEE  
Univ. of Oklahoma  
Norman, OK, US

**Taurug Baca**  
B.S., Comp. Eng., UF  
St. Augustine, FL, US

**Christopher Backus**  
Senior Engineer  
B.S. Mech. Eng., MSOE  
Bothell, WA, US

**Robert Baeyen**  
B.S. Metall. Eng.  
Univ. of Missouri  
Sonoma, CA, US

**Phil Bales**  
Aerospace Reliability,  
Life Cycle Engineer,  
B.S., Aerospace Eng.  
St. Louis Univ.  
Columbus, IN, US

**Matthew Barchman**  
B.S., Const. Eng., ISU  
Denver, CO, US

**Michael Barg**  
ME. Aerospace  
Cornell Univ.  
Lexington, MA, US

**Jack Barke**  
B.S. Mech. Eng.  
Univ. of Minnesota  
Everett, WA, US

**Adam Barlow**  
B.S. Computer Eng.  
Redmond, WA, US

**William Barry**  
Engineer (Ret.)  
BSPE  
Tulsa, OK, US

**Dik Bartholomew**  
B.S. Mech. Eng.  
Sedona, AZ, US

**Mark Basile**  
B.S. Chem. Eng.  
Hollis, NH, US

**Robert Bass**  
P.G.  
MS Env. Eng.,  
Univ. of Florida  
Hobe Sound, FL, US

**Mark Baumann**  
Dir. of Eng.  
M.S. Aerospace Eng.  
Georgia Tech  
La Mirada, CA, US

**Matthew Beale**  
Financial Risk Mgr.  
B.S., M.S., Ind. Eng.  
Stanford  
Brooklyn, NY, US

**Norman Bean**  
B.S. Mech. Eng.  
Univ. of Maryland,  
Baltimore County  
California, MD, US

## Engineering Professionals

### Jon Beasley

B.S. Chem. Eng.  
Univ. of Washington  
Casper, WY, US

### Dan Beausoleil

D.E.E. Elec. Eng.  
Univ. of Utah  
Dover, NH, US

### Martin Beck

Aerospace Engineer  
B.S. Electrical Eng.  
Albuquerque, NM, US

### Christine Begley

E.I.T.  
BSCE Manhattan,  
MCE Villanova  
Mahwah, NJ, US

### Robert Bell

B.S. Mech. Eng., UH  
Seattle, WA, US

### Mark Bennett

B.S. Mech. Eng.  
Bonney Lake, WA, US

### Kent Beus

MS Elec. Eng.  
Brigham Young Univ.  
Washington, UT, US

### Katherine Bewersdorf

Boeing Eng.  
M.S. Aerospace Eng.,  
Washington Univ.  
Denver, CO, US

### Bharat Bhatia

Eng. MEE  
Program Manager  
San Jose, CA, US

### Prasad Bhatt

President  
Certaire Tech. Servs.  
Masters in Mech. Eng.  
Arlington Heights, IL, US

### Scott Biba

Sr. Mech. Eng.  
BSME, GMI Eng. &  
Management Inst.  
Waunakee, WI, US

### Peter Bick

B.S. and M.S.  
Elec. Engineering  
Univ. of NH  
Tega Cay, SC, US

### Karel Bielstein

Professor  
B.S., M.S. Geo. Eng.  
SDSM&T  
Rapid City, SD, US

### Brent Bill

B.S., Ind. Eng.  
Nashville, TN, US

### Derick Bingman

BSEE,  
Univ. of Utah  
Salt Lake City, UT, US

### Jeffrey Bishop

B.S. Civil Engineering  
University of Texas  
Austin, TX, US

### Steve Bishop

Senior System Adm.  
B.S. Elec., Comp. Eng.  
Boise, ID, US

### Joe Blackett

B.S. Marine Eng.  
Oakland, CA, US

### Brian Blair

B.S. Eng. CWRU  
Peninsula, OH, US

### William Blanch

B. Engineer  
B.S. Aerospace Eng.  
San Jose St. Univ., CA  
Hayward, CA, US

### Erich Blohm

Eng. Consultant  
M.S. Mech. Eng.  
Columbia Univ.  
Rhinebeck, NY, US

### Raymond Blohm

Aerospace Eng.  
B.S., M.S.  
Aerospace Eng.  
VA Tech  
Shady Cove, OR, US

### Eric Blomgren

B.S. Civil Eng.  
Iowa State Univ. of  
Science and Tech.  
Mankato, MN, US

### Alvin Bloom

Eng. Consultant  
B.S., MS, Ph.D.  
Aerospace Eng.  
San Antonio, TX, US

### John Boardman

Life Member,  
ASME, IEEE  
B.S. Eng. USNA  
Madison, MS, US

### Nicholas Bogdanos

Manufacturing Eng.  
B.A. Mech. Eng., TU  
Fort Worth, TX, US

### Cesar Bogino

Engineering Staff  
AE & MSAE,  
USNPGS, BSME,  
Univ. of Peru  
Yucaipa, CA, US

### Vlad Bondarev

Systems Support Eng.  
M.S. in Mech. Eng.  
Burlingame, CA, US

### Kristopher Borer

M.S. Engineering  
Philadelphia, PA, US

### Philippe Bossard

MSEE ETH, MBA,  
U of San Francisco  
Miami, FL, US

### William Bowie

BSME  
Clarksburg, WV, US

### Robert Bowman

Dr., Lt. Col., USAF, (Ret.)  
Eng. Manager  
Ph.D., Aeronautics,  
Nuclear Eng., Caltech  
Melbourne, FL, US

### Lawrence Boyer

Asst. Professor of  
Aerospace & Mech. Eng.  
Master of Science  
St. Louis Univ.  
Saint Louis, MO, US

### Steven Boyer

B.S. Chem. Eng.  
B.S. Biochemistry,  
Univ. of Minn.  
Saint Paul, MN, US

### George Brady

B.S.  
Mining/Minerals Eng.  
Boardman, OH, US

### Jason Brandenburg

B.S. Mech. Eng.  
Michigan Tech. Univ.  
Portage, MI, US

### Peter Brand

B.S. Mech. Eng.  
Univ. of Florida  
Louisville, KY, US

### George Brandt

Computer Consultant,  
CEO of Systems Res.  
B.S.E.E.  
Univ. of Colorado  
Broomfield, CO, US

### Jim Braun

B.S. Civil Eng., CSU  
Cleveland, OH, US

### Peter Bray

Masters,  
Mech. Eng. Design  
Benicia, CA, US

### Laurence Breaker

B.S.M.E.,  
Bucknell Univ.  
Santa Cruz, CA, US

### Cliff Breazeale

BSME  
Univ. of S. Carolina  
Greenwood, SC, US

### Jeff Bremer

B.S.M.E.,  
Univ. of Michigan  
Livonia, MI, US

### Paul Briggs

Mech. Eng.  
Quindaro Plant  
B.S. Mech. Eng.  
Kansas St.  
Kansas City, KS, US

### James Bronke

Eng. Consultant  
BSEE, CSUN  
Cassopolis, MI, US

### Paul Browning

Eng. Staff  
B.S. Aerospace Eng.  
NCSU, MS OR Stanford  
Atlanta, GA, US

### Larry Brownstein

B.S., Elec. Eng.  
Culver City, CA, US

### Alex Bruder

B.S. Mech. Eng.  
East. Wash. Univ.  
Seattle, WA, US

### Travis Bruehl

B.S. Elec. Eng.  
Milwaukee School  
of Engineering  
Ocoee, FL, US

### Jason Bryant

B.S. Electrical Eng.  
Stanford Univ.  
Santa Cruz, CA, US

### Nathan Bryant

B.S. Mat. Sci. and Eng.  
Wright State Univ.  
Fairborn, OH, US

### Lisa Bueno

B.S., Aerospace Eng.  
Georgia Tech.  
Albuquerque, NM, US

### Bruce Burdick

Eng. & Patent Atty.  
B.S. Eng., Stevens Inst.  
Alton, IL, US

## Engineering Professionals

**David Buren**  
B Elec. Eng.  
Univ. of Detroit,  
Peterborough, NH, US

**Sylvester Burford**  
B.S. Mech. Eng.  
Florida Intl. Univ.  
Lewisburg, WV, US

**Edward Burniski**  
Licensed Contr., Inventor  
B.S., Elec. Eng. Tech.  
Wilkes-Barre, MA, US

**Taylor Burton**  
B.S.  
Petroleum Eng.  
Montana Tech.  
Houston, TX, US

**Tariq Butt**  
Tech. Project Mngr.  
BSC Eng., MBA  
Raleigh, NC, US

**Chris Byers**  
B.S. Elec. Eng.  
College Station, TX, US

**Michael Byrne**  
B.S. Chem. Eng.  
Penn State Univ.  
Jupiter, FL, US

**Harold Cadman**  
BSEE, MBA  
Hollis, NH, US

**John Caiazza**  
Lead Stress Eng.  
Spirit Aerosystems  
BSAE  
Embry Riddle Aero. Univ.  
Wichita, KS, US

**Christian Calderon**  
BE Civil Eng.  
City College of NY  
Miami, FL, US

**Wilson Callan**  
B.S. Elec. Eng.  
Univ. of Conn.  
Sandwich, MA, US

**Joseph Camera**  
B.S. Mech. Eng.  
Florida Inst. of Tech.  
Lompoc, CA, US

**Matthew Camilli**  
Power Systems Eng.  
B.S., Elec. Eng.  
SUNY IT  
Oncida, NY, US

**Guillermo Cancio**  
Eng. Staff (Ret.)  
Mech. Eng., FAU  
Hollywood, FL, US

**Ronald Cao**  
Sr. Elec. Eng.  
BSEE, MSEE  
Stanton, CA, US

**Carlos Caridad**  
Masters in Elec. Eng.  
Argentinean Nat. Tech.  
Univ. Cordoba  
Torrance, CA, US

**Thomas Carter**  
Eng. Staff, Optics  
San Diego, CA, US

**Don Cassidy**  
B.S. Elec. Eng.  
Colorado State Univ.  
Monument, CO, US

**Luis Castano**  
B.S. Eng.  
Arizona State Univ.  
Allentown, PA, US

**Bruce Caswell**  
M.S. Engineering  
Univ. of Michigan  
Dearborn, MI, US

**James Catterall**  
Senior Engineer  
B.S. in Eng.  
Casco, MI, US

**Eric Catuccio**  
B.S. Chem. Eng.  
M.S. Polymer Science  
Westfield, MA, US

**Bruce Cepas**  
B.S., Elec. Eng.  
Mount Laurel, NJ, US

**Michael Cerasiello**  
Eng. Consult. Emeritus  
B.S.I.E.T.  
S. Polytechnic St. Univ.  
Kennesaw, GA, US

**Peter Chan**  
B.S. Mech. Eng.  
Univ. of IL, Chicago  
San Diego, CA, US

**Robin Chase**  
Engineering Staff  
Univ. of Maryland  
Tucson, AZ, US

**David Chen**  
Ph.D. EE  
Univ. of Illinois  
Irvine, CA, US

**Dane Christie**  
B. Eng., Chem. Eng.  
City College of NY  
Princeton, NJ, US

**Daniel Clark**  
Engineering Staff  
M.S., Mech. Eng.  
UW-Madison  
Auburn, NY, US

**Christian Clausen**  
Reg. Prof. Land Surveyor  
B.S., Surveying Eng.  
NMSU  
El Paso, TX, US

**Dave Clifford**  
B.S. Aerospace Eng.  
Cal Poly SLO  
San Luis Obispo, CA, US

**Ronald Coddington**  
B.S. Mech. Eng.  
Syracuse Univ.  
Willow Spring, NC, US

**Steven Cohn**  
Engineer  
B.S. Engineering,  
Univ. of Arkansas  
Tempe, AZ, US

**Robert Coleman**  
Dallas, TX, US

**Chad Coles**  
B.S.E.E.T.  
Purdue Univ.  
Indianapolis, IN, US

**Alfred Collins**  
B.S. Elec. Eng.  
Univ. of Houston  
Houston, TX, US

**Michael Collins**  
BS, MS, Mech. Eng.  
Florida State Univ.  
Jacksonville, FL, US

**Moises Colon**  
Eng., Energy Auditor  
Elec. Engineer  
Carolina, PR, US

**Avery Colter**  
Energy Effic. Analyst  
EIT, LEED-AP, B.S.  
Bay Point, CA, US

**Wilfredo Colón-Santiago**  
Chemical Engineer  
B.S. ChE  
Tampa, FL, US

**Michael Connor**  
B.S. Mech. Eng.  
Univ. of Maine  
Box Elder, SD, US

**Victor Connor**  
IBM Eng. (Ret.)  
M.S. Elec., Comp. Eng.  
Normal, IL, US

**Leif Cook**  
Mech. Eng.  
B.S. Mech. Eng.  
Boulder, CO, US

**Travis Cook**  
Engineer Intern  
BSEE, BSCE  
Elkins, WV, US

**Robert Cooper**  
B.S. Ch.E, Penn St.  
Hoover, AL, US

**Pablo Corbella**  
B.S. Elec. Eng.  
Drexel Univ.,  
Philadelphia, PA, US

**Michael Corey**  
Eng. Consultant  
Master in Elec. Eng.  
Austin, TX, US

**James Cornwell**  
Student  
Chem. Eng., Minn.  
Saint Paul, MN, US

**Stephen Cottrell**  
B. of Chem. Eng.  
Univ. of Delaware  
Landenberg, DE, US

**Gregory Covington**  
B.S. CNSM  
KS St. College of Eng.  
Manhattan, KS, US

**David Cox**  
BSEE  
Univ. of Colorado  
Palisade, CO, US

**Tom Cox**  
B.S. Mech. Eng.  
New Mexico St. Univ.  
Reno, NV, US

**Nate Craine**  
B.S. Mech. Eng.  
Ohio State Univ.  
Columbus, OH, US

**John Crawford**  
B.S. Eng.  
Eng. Consultant  
Opelika, AL, US

## Engineering Professionals

**Terri Creech**  
B.S.M.E.  
B.S. Mech. Eng.  
Oklahoma City, OK, US

**Walter Crompton**  
Sr. Quality Engineer  
MS Elec. Eng.  
Certified Quality Eng.  
San Mateo, CA, US

**George Cubas**  
B.S. Chem. Eng.  
The Univ. Houston  
Houston, TX, US

**Kevin Cullinan**  
Engineering Staff  
B.S. Eng., UC Davis  
Sacramento, CA, US

**Dana Curtis**  
Mech. Eng.  
Bachelor Mech. Eng.  
Starksboro, VT, US

**Kenneth Curtis**  
B.S., M.S., Met.E.  
Polytechnic U. of NYU  
Boynton Beach, FL, US

**Ronald Cutburth**  
Dr., Ph.D  
Mng. of Eng. Sci. Ops.  
Greeneville, TN, US

**Matthew Cutter**  
Engineer  
B.S., MS Eng.  
Tampa, FL, US

**Christopher D'Andrea**  
B.S. Aerospace Eng.  
Buffalo, NY, US

**Mark Dabney**  
Technician  
BSMET  
Tucker, GA, US

**Kevin Dale**  
B.S. Elec. Eng.  
Purdue Univ.  
Greenwood, IN, US

**Noah Dalton**  
Engineer  
B.S. Mech. Eng.  
Colorado St. Univ.  
Fort Collins, CO, US

**Brandon Davis**  
B.S. Mech. Eng.  
LeTourneau Univ.  
Longview, TX, US

**Howard Davis**  
EE, Elec. Eng. Cons.  
BSEE  
Brooklyn, NY, US

**Janna Davis**  
IOE  
B.S. Eng., Michigan  
Chicago, IL, US

**Malcolm Davis**  
B.S. Aerospace Eng.  
Univ. of Texas, Austin  
Dallas, TX, US

**Michael Davis**  
B.S. Eng. Tech.  
Cal. St. Univ.  
Sacramento  
Auburn, CA, US

**Michael Davis**  
B.S. Chem. Eng.  
Cal. State Univ.  
Long Beach  
M.S. Eng., CSULB  
Aurora, IL, US

**Paul Davis**  
B. Eng. Science  
Georgia Inst. of Tech.  
Marietta, GA, US

**Rudy Davis**  
B.S. Elec. Eng.  
Dallas, TX, US

**Stephen Davis**  
Engineer  
B.S., M.E.,  
Texas Tech. Univ.  
Carrollton, TX, US

**Donald Dawson**  
B. Mech. Eng.  
Manhattan College  
Ithaca, NY, US

**Doug de la Torre**  
B.S. Elec. Eng., WSU  
Renton, WA, US

**Norman De Silva**  
Master of Eng.  
Howard Univ.  
Randallstown, MD, US

**Kenneth DeAlmeida**  
B.S.M.E.  
Boscawen, NH, US

**Joseph DeClue**  
B.S. EE M.I.T.  
Santa Ana, CA, US

**Dwain Deets**  
Flight Res. Eng. (Ret.)  
M.S. Physics, SDSU,  
M.E. UCLA  
Encinitas, CA, US

**John Deliberto**  
Transportation Eng.  
B.S. Civil Eng., U. Conn.  
Vernon, CT, US

**Vincent DeLuca**  
B.S.E.E.  
Great Falls, VA, US

**Michael Deming**  
Mech. Eng.  
Golden, CO, US

**Benjamin Dermer**  
EIT  
BSME, NCSU  
Raleigh, NC, US

**Dave DeSimone**  
B.S. Civil Eng.  
Univ. of Rhode Island  
Knoxville, TN, US

**Gunthar Detches**  
BS, CEM,  
Long Beach St. Univ.  
Aliso Viejo, CA, US

**Paul Dewey**  
Mech. Eng.  
B.S. M.E.  
San Diego St. Univ.  
Poway, CA, US

**Kurt DeWitt**  
Managing Consult.  
B.S. Elec. Eng.  
UAL, Huntsville  
Dallas, GA, US

**Maurizio Di Pierro**  
Ph.D., Student  
MS Aerospace Eng.  
Politecnico di Torino  
Royal Oak, MI, US

**Brett Diggins**  
BS Arch. Eng.,  
MS Struct. Eng.  
Milwaukee Sch. of Eng.  
Chicago, IL, US

**Justin Dillman**  
B.S. Mech. Eng.  
Lexington, KY, US

**David Dillner**  
BAS, Elec. Eng. Tech.  
ITT Tech. Inst.  
Crawfordsville, IN, US

**John DiNatale**  
CEO, Karina Aerospace Inc.  
Mech. Eng./Math.  
CSI-NY  
Parlin, NJ, US

**Thomas Dolan**  
Aerospace Eng. (Ret.)  
BSME-IIT, MSAE-USC,  
MSEA-TCEA (NATO)  
Nipomo, CA, US

**Daniel Donahue**  
B.S. Mech. Eng.  
Lawrence Tech. Univ.  
St. Clair Shores, MI, US

**Bob Donjacour**  
Elec. Eng.  
B.S. Elec. Eng.  
Cornell  
San Francisco, CA, US

**Craig Dostie**  
J.O.A.T.M.O.N.  
BA, Communications,  
BSEE, Univ. of Michigan  
Truckee, CA, US

**Tad Dougherty**  
Elec. Eng.  
B.S. Elec.  
Univ. of California,  
Santa Barbara  
Goleta, CA, US

**John Doughty**  
B.S. Elec. Eng.  
Kansas State Univ.  
M.S. Eng. Mgmt.  
Univ. of Kansas  
Overland Park, KS, US

**Roy Dudley**  
B.S. Mech. Eng.  
Oakland Univ.  
Daly City, CA, US

**Brian Dugay**  
Digital Forensic Analyst  
B.S., Eng., Univ. of Mass  
San Jose, CA, US

**William Dumke**  
M.S. Elec. Eng.  
Univ. of WI, Madison  
Green Bay, WI, US

**Harold Duncan**  
B.S. Elec. Eng.  
Iowa State Univ.  
Palmdale, CA, US

**David DuPaul**  
Engineer  
B.S. Mech. Eng., Physics  
Trinity College  
East Haven, CT, US

**William Durfey**  
MS Syst. Eng.  
Univ. of Arizona,  
Gallina, NM, US

**Roger Dwyer**  
B.S. Mech. Eng.  
Univ. of New Haven  
Kila, MT, US

**Jack Edling**  
B.S. Ind. Eng.  
Purdue University  
Fenton, MI, US



## Engineering Professionals

**Larry Edwards**  
B.S. Aeronautical Eng.  
B.S. Mech. Eng.  
Sitka, AK, US

**Jesse Elliott**  
Safety & Quality Officer  
B.S. Mech. Eng.  
San Luis Obispo, CA, US

**Marsha Elliott**  
Env. Consultant  
M.S., Env. Eng., USC  
Walnut Creek, CA, US

**Paul Elliott**  
B.S. Metall. Eng.  
Univ. of Missouri  
Eureka, MO, US

**Timothy Ellison**  
Ph.D., Phys. and Eng.  
Ph.D. Physics I.U.  
B.S. Eng. Univ. of ND  
Nashville, IN, US

**Roger Ellman**  
M.S. Elec. Eng.  
Stanford University  
Santa Rosa, CA, US

**Mohamed Eltarkawe**  
B. Eng., Mech. Eng.  
Omar Al Mukhtar Univ.  
MS Mech. Eng.  
Univ. of Colorado  
Boulder, CO, US

**Irucka Embry**  
B.S.C.E.,  
Eng.-in-Training  
B.S. Civ. Eng.,  
Minor Env. Eng.  
Murfreesboro, TN, US

**Obiora Embry**  
E.I.T., B.S. Eng.  
Univ. of Tennessee  
Lexington, KY, US

**Brad Epperson**  
Test Engineer  
BSEET  
Troy, MI, US

**Robert Epperson**  
E.I.T.  
BS Civil Eng.  
Texas Tech Univ.  
Fort Worth, TX, US

**Erk Erginer**  
Dr., Ph.D. Metall. Eng.  
Brown Univ.  
Winston-Salem, NC, US

**Larry Erickson**  
Res. Eng. (NASA Ret.)  
Ph.D., VA Polytechnic  
Institute & SU  
Pismo Beach, CA, US

**Donald Ericson**  
B.S. E.E., Elec.  
MI State Univ.  
Santa Clara, CA, US

**Benjamin Erwin**  
B.S. Engineering,  
B.S. Aerospace Eng.  
M.I.T.  
Cambridge, MA, US

**Jon Eulette**  
B.S. Civil Eng.  
CA Polytech Univ.  
Banning, CA, US

**Arthur Evans**  
Clackamas, OR, US

George Everett  
B.S., USCGA; BSEE, MIT.  
Edmonds, WA, US

**Edwin Faber Jr.**  
Mech. Eng.  
B.M.E. Cornell Univ.  
Grad Program  
Rhinebeck, NY, US

**Charles Faddis**  
Bainbridge Island  
WA, US

**Christopher Fagan**  
BSEE, Fmr. Eng.  
Molalla, OR, US

**Phillip Falardeau**  
Staff Engineer  
B.S., Civil Eng.  
Marietta, GA, US

**Chach Fallgatter**  
B.S., General. Eng.  
Cal Poly SLO  
Guerneville, CA, US

**Frankret Farmer**  
BS/ME SMU, Navy Pilot  
Ash Fork, AZ, US

**Chris Farnworth**  
Controls Engineer  
B.S. Elec. Eng.  
Arvada, CO, US

**Luis Feliu**  
Mech. Engineer  
B.S., Mech. Eng.  
UPRM  
Kearneysville, WV, US

**Russell Felt**  
B.ChE, JD  
Univ. of Minn.  
St. Paul, MN, US

**Joseph Ferguson**  
Engineering Staff  
Bach. Comp. Eng.  
Auburn Univ.  
Menlo Park, CA, US

**Michael Figa**  
Senior Process Eng.  
Biomedical Eng., M.S.  
Cambridge, MA, US

**Robert Firmature**  
B.S., M.S.E., Mech. Eng.  
Univ. of Iowa  
Thornton, CO, US

**Timothy Fishel**  
Engineering Staff  
BSME, Bradley Univ.,  
Peoria, IL  
Chillicothe, IL, US

**Jonathan Fishman**  
B.S. Civil Eng.  
UC Davis  
Arnold, CA, US

**Thomas Fitzgerald**  
B Mech. Eng.  
Stony Brook Univ.  
Manorville, NY, US

**Daniel Fleege**  
EIT Eng. Staff  
M.S. Civil Eng.  
w/ Env. Emphasis  
Oakland, CA, US

**Keith Fleming**  
Engineering Staff  
B.S. Mech. Eng.  
Auburn, GA, US

**William Fleming**  
Eng. Consultant  
BSME, Univ. of Texas  
Asheville, NC, US

**Gary Flomenhoft**  
B.S. Mech. Eng.  
Tufts Univ.  
Burlington, VT, US

**Daniel Flynn**  
Student  
B.S. Elec. Eng.  
CSULB  
Newport Beach, CA, US

**Juan Fonseca**  
M. Sci.  
M.S. Eng. Mgt., USC  
Dallas, TX, US

**Edwin Force**  
Ph.D. (Ret.)  
Ph.D. Chem. Eng.  
UC Berkeley  
Berkeley, CA, US

**Michael Ford**  
B.S. Radiological Eng.  
Texas A&M Univ.  
Amarillo, TX, US

**Paul Forrest**  
Birkenhead, GB

**Yehia Fouad**  
Engineer  
B.S. Chem. Eng.  
Purdue Univ.  
Indianapolis, IN, US

**George Foushi**  
Business Owner  
B.S. Aeronautical Eng.  
Oro Valley, AZ, US

**Alex Fouss**  
Engineer  
Boulder, CO, US

**Skip Fralick**  
Energy Engineer  
BSME  
San Diego, CA, US

**Michael Fraser**  
Mech. Eng.  
Crosslake, MN, US

**Bo Fredricsson**  
MSEE  
Pittsburgh, PA, US

**Jerome Freedman**  
B.S. Chem. Eng.  
Purdue Univ.  
Greenbrae, CA, US

**Marc Frey**  
Engineer  
B.S., Mech. Eng., RPI  
Schenectady, NY, US

**Robert Fritzius**  
Elec. Eng. (Ret.)  
B.S. Elec. Eng.  
Purdue Univ.  
Lafayette IN  
Starkville, MS, US

**William "Clay" Fulk**  
Charleston, SC, US

**David Fura**  
Ph.D. Elec. Eng.  
Univ. of Washington  
Portland, OR, US

**Patrick Gallagher**  
BSME  
Albuquerque, NM, US

**Adrianna Galletta**  
Eng. Consultant  
BSEE  
Fishkill, NY, US

**Albert Gearing**  
BSEE  
Electronics Option  
Univ. of Illinois  
Burleson, TX, US



## Engineering Professionals

**Arthur Geldres**  
B.S. Engineering  
Univ. of Michigan  
Saint Clair, MI, US

**Thomas Gentilo**  
Eng. Staff, EIT, CWI  
BA Geol., B.S. Gen. Eng.  
Univ. of Montana  
Port Angeles, WA, US

**Stan Gentry**  
Software Eng.  
B.S. Eng., Physics  
Univ. Oklahoma  
Reeds Spring, MO, US

**Mark Gergely**  
BSEE, PSU  
Ebensburg, PA, US

**Mark M. Giese**  
B. Met. Eng.  
Racine, WI, US

**John Gilmore**  
Civil Engineer  
BS, CE, Purdue Univ.  
Norcross, GA, US

**Gian Girardi**  
B.S. Civil Eng.  
Catholic Univ. of  
Santiago, Chile  
Glendale, CA, US

**Filson Glanz**  
Ph.D. EE  
Durham, NH, US

**Sean Glazier**  
Lead Engineer  
BSEE  
Queen Creek, AZ, US

**Robert Goddard**  
B.S. Elec. Eng.  
Univ. of Colorado  
Boulder, CO, US

**Lester Goodger**  
Engineer  
B.S.E.E.  
W. Michigan Univ.  
Cassopolis, MI, US

**Srinivas Gopal  
Krishna**  
BE Mech., SCSVMU  
Tamil Nadu, India,  
Ph.D. Mech. Eng.  
Louisiana State Univ.  
Houston, TX, US

**Charles Goyette**  
Engineering Staff  
B.S.M.E., B.S.E.E.,  
M. Ed, Math  
Austin, TX, US

**Joseph Grab**  
B.S. Elec. Eng.  
Penn State Univ.  
Killeen, TX, US

**Michael Graham**  
BSEE  
Kenosha, WI, US

**Anton Grambihler**  
B.S. Mech. Eng.  
SDSM&T  
Richland, WA, US

**Diana Grauer**  
Ph.D. Mech. Eng.  
Kansas State Univ.  
Cypress, TX, US

**Lathan Gravelle**  
B.S. Arch. Eng. Tech.  
Vermont Tech. College  
Richmond/Jericho, VT, US

**Terry Gray**  
DDS, BSEE,  
B.S. Biomed. Eng.  
Wichita, KS, US

**David Gregg**  
Ph.D., Chem. Eng.  
Moraga, CA, US

**Juergen Greve**  
B.S. Mech. Eng.  
Kansas State Univ.  
Topeka, KS, US

**David Griffin**  
B.A. Mech. Eng.  
Cape Technikon  
Royal Oak, MI, US

**Andrew Griffith**  
B.S. Chem. Eng.  
Seattle, WA, US

**Peter Grosch**  
B.S. Mech. Eng.  
Worcester Polytech. Inst.  
Winston-Salem, NC, US

**Warren (xiang) Guan**  
VP of Engineering  
B.S. Comp. Science  
& Engineering  
Univ. of California  
San Francisco, CA, US

**James Guenes**  
Elec. and Sys. Eng.  
B.S. Elec. Eng. Tech.  
Cincinnati, OH, US

**Christopher Guida**  
B.S. Elec., Comp. Eng.  
Carnegie Mellon Univ.  
Denver, CO, US

**Timothy Guiles**  
B.S., B. Eng.  
Dartmouth College,  
Thayer School  
Brandon, VT, US

**Adam Gumul**  
Professional Eng.  
BSME, Oakland Univ.  
Shelby Township, MI, US

**Mark Gunderson**  
B.S. Mech. Eng.  
Portland State Univ.  
Portland, OR, US

**Tyson Gustus**  
Eng. Consultant  
M.S.M.E., UC Berkeley  
San Diego, CA, US

**Eric-Scott Guthrie**  
B.S. Elec. Eng.  
Univ. of N. Carolina  
Carrboro, NC, US

**Bruce Haas**  
Project Manager  
BSCE  
Bellingham, WA, US

**Ryan Haas**  
B.S. Civil Eng.  
PSU  
Austin, TX, US

**Rodney Hagel**  
B.S. Mech. Eng.  
Washington St. Univ.  
Spokane, WA, US

**Roque Haines**  
Eng. Tech. Manager  
BSME  
West Virginia Univ.  
Maplewood, MN, US

**Alan Halbert**  
Mech/Project Eng.  
BASEET & CMBA  
Bluffdale, UT, US

**Denise Hall**  
B.S., Mfg. Eng.  
Bradley Univ.  
Memphis, TN, US

**Ralph Hallmark**  
MS Mech. Eng.  
Fairleigh Dickinson Univ.  
Teaneck New Jersey,  
Keyport, NJ, US

**Peter Hall**  
MS, EE, MIT  
South Wellfleet, MA, US

**Donald Hammen**  
Mech. Eng., M.S.M.E.  
Rochester, NY, US

**Sherman Handberg**  
B. Mech. Eng.  
Duluth, MN, US

**Kai Hankinson**  
MBA, CEO  
B.S. Eng.,  
Cornell Univ.  
Carlsbad, CA, US

**Charles Hanna**  
Eng. Consultant  
Bach. of Civil Eng.  
Georgia Tech  
Denville, NJ, US

**Richard Hansel**  
B.S. Chem. Eng.  
UW, Madison  
Washington, WV, US

**John Harle**  
B.Sc. Aero Eng.  
Imperial College  
Seattle, WA, US

**Ken Harp**  
B.S. Mech. Eng.  
UC San Diego  
Kirkland, WA, US

**Benjamin Harrison**  
B.S. Aerospace Eng.  
MS Eng. Mech.  
Univ. Texas, Austin  
Austin, TX, US

**Howard Hartman**  
B.S.M.E.  
Univ. of Colorado  
Broomfield, CO, US

**Maurice Hartman**  
Eng. Consultant  
M.S. Eng. Math  
Univ. of Tulsa  
Placentia, CA, US

**Hans Gregory  
Hartmann**  
B.S. Mech. Eng.  
Montana State Univ.  
Bunnell, FL, US

**Zachary Hart**  
B.S. Engineering  
Purdue University  
Hermosa Beach, CA, US

**Syed Imran Hasan**  
B Eng.  
Univ. Inst. of Tech.  
Bhopal India  
Pasadena, CA, US

**Kristen Haskell**  
BSME, Univ. of Maine  
Lovell, ME, US

## Engineering Professionals

**Richard Hatcher**  
B.S. Elec. Eng.  
Univ. of Florida  
Jeffersonville, IN, US

**Todd Hathaway**  
B.S. Metall. Eng.  
Atlanta, GA, US

**James Hayhurst**  
Parachute Designer  
& Test Jumper; Writer  
B.S. USAF Academy  
Bradfordwoods, PA, US

**Stan Head**  
B.S. Mech. Eng.,  
B.S. Math. Eng.  
Univ. of Michigan  
San Jose, CA, US

**Colin Heidtman**  
B.S., M.E.  
UMD College Park  
Idaho Falls, ID, US

**William Helbig**  
LSIT  
B.S. Surveying AS EE  
Marietta, GA, US

**William Helgeson**  
Eng. Staff  
B.S. Civil Eng.  
U of Minn.  
Edina, MN, US

**Shelton Hendriex**  
B.I.E., Eng.  
Georgia Tech  
Cincinnati, OH, US

**Robert Henson**  
Engineer  
B.S. Mech., Nuclear Eng.  
Winter Park, FL, US

**Tony Hepp**  
Design Engineer  
B.S. Mech. Eng.  
Univ. of AR  
Spring, TX, US

**Rodger Herbst**  
Engineering Staff  
BAAE, ME  
Ohio State Univ.  
Snohomish, WA, US

**Eric Heredia**  
Elec. Engineer  
B.S. Elec. Eng.  
Vancouver, WA, US

**Richard Hermann**  
BSEE  
Long Beach, CA, US

**Eric Hermanson**  
B.S. Eng. Physics,  
M.S. Nuclear Eng.  
Detroit, MI, US

**Melvin Hernandez**  
Manufacturing Eng.  
B.S. Mech. Eng., NJIT  
Jersey City, NJ, US

**Henry Herskovitz**  
Mech. Eng. (Ret.)  
BSME  
Ann Arbor, MI, US

**John Hesson**  
B.S. Petrol. Eng. Tech.  
Little Rock, AR, US

**Josh Higgins**  
Engineer  
Corvallis, OR, US

**T. Mark Hightower**  
B.S., MS, Chem. Eng.  
San Jose State  
Univ. California  
San Jose, CA, US

**James Hillabrand**  
Civil Eng. Grad. Student  
B.S. Civil Eng.  
Univ. of Arkansas  
Columbus, MS, US

**Brendan Hill**  
Engineer  
B.S. Mech. Eng.  
W. Michigan Univ.  
Kalamazoo, MI, US

**Chris Hills**  
Sr. Ultrasonic Eng.  
B.S.E.E.  
Univ. of Utah  
Syracuse, UT, US

**William J. Hindelang**  
Certified Quality Eng.  
B.S. Metall. Eng.  
Michigan Tech  
Troy, MI, US

**Joel Hirschhorn**  
Ph.D., Fmr. Full Prof.  
of Engineering  
Ph.D. Mat. Eng., RPI  
Chevy Chase, MD, US

**Christine Hoeflich**  
B.S.  
Materials Scientist  
and Engineer  
Campbell, CA, US

**Bill Hoff**  
B.S. Mech. Eng.  
Arizona St. Univ.  
Suisun City, CA, US

**Phil Hoff**  
Professor  
Ph.D. Elec. Eng.  
UC-Berkeley  
Chico, CA, US

**Brett Hoffstadt**  
Aerospace Eng.  
B.S.AAE, M.S.AE  
San Antonio, TX, US

**Barrett Hoines**  
B.S. Elec. Eng.  
SD School  
Phoenix, AZ, US

**William Holmes**  
Eng. Consultant  
Aeronautical Eng.  
Lancaster, CA, US

**Nellie Horakhsh**  
Eng. Consultant  
B.S., Civil Eng., SJSU  
San Jose, CA, US

**Norma Hostetler**  
B.S. Mech. Eng.  
Cal State Polytechnic  
Univ., Pomona  
Torrance, CA, US

**Kevin Hotton**  
MS Mech. Eng.  
Univ. of Florida  
Arvada, CO, US

**Larry Howe-Kerr**  
B.S. Eng.  
Miss. St. Univ.  
Louisville, KY, US

**Rich Howe**  
Eng. Consultant  
B.S. Elec. Eng.  
Atascadero, CA, US

**Paul Howes**  
Eng. Staff  
B.S.E.E., Electronics  
Boulder, CO, US

**Larry Hoy**  
B.S.  
Aeronautical Eng.  
Wichita St. Univ.  
Wichita, KS, US

**Bret Hughes**  
B.S. Aero. Eng.  
Cal Poly  
Santa Barbara, CA, US

**Ralph Hughes**  
B.S. Mech. Eng.  
Mesa, AZ, US

**Kenneth Hulet**  
Eng. Consultant  
B.S., Eng. Mgmt.  
Univ. of Ill., Chicago  
Homewood, IL, US

**Adam Hunt**  
Engineer  
B.S. Mech. Eng.  
Bucknell Univ.  
Brooktrondale, NY, US

**Ted Huntington**  
B.S. Computer Eng.  
Clarkson Univ.  
Irvine, CA, US

**John Huntzinger**  
B.S. Agri. Eng.  
Purdue Univ.  
Indianapolis, IN, US

**David Hyer**  
B.S. Chem. Eng.  
NCSU  
Novato, CA, US

**Paul Hylander**  
M.S. Elec. Eng.  
Wash. St. Univ.  
Plano, TX, US

**Eliezer Ihejirika**  
Engineering Staff  
B.S. Elec. Eng.  
San Diego, CA, US

**Robert Ireland**  
B.S. Chem. Eng.  
Beaverton, OR, US

**Ahmet Iscen**  
Software Engineer  
B.S. Computer Eng.  
Seattle, WA, US

**David Isham**  
M.S. Computer Sci.  
Cal Poly SLO  
San Rafael, CA, US

**Mohamad Ishwait**  
B.S.E.E.  
Anaheim, CA, US

**Jonathan Iungerich**  
BSME Mech. Eng.  
San Diego, CA, US

**Leigh Jackson**  
B.S. Mech. Eng.  
Melbourne, FL, US

**Patrick Jacobs**  
Electrical, Nuclear  
Eng. (Ret.)  
MSEE, Oregon St. Univ.  
Longmont, CO, US

## Engineering Professionals

**Hiram Jacques**  
BSEE, MSEE  
Univ. of Texas, Austin  
Sweetwater, TX, US

**Anila Jahangiri**  
Ph.D., BSEE,  
MS Biomedical Eng.  
Charlottesville, VA, US

**John Jaksch**  
Design Engineer  
BSME, Univ. of Ill.  
Glenview, IL, US

**Martin Jalovec**  
Engineering Staff  
B.S. Mech. Eng.  
Southern Illinois Univ.  
Carbondale, Ill.  
Huntsville, AL, US

**Patrick James**  
B.S. Plastics Eng. Tech.  
Ferris State Univ.  
Brier, WA, US

**Roy Jarl**  
B.S. Eng. USB  
San Francisco, CA, US

**James Jasiewicz**  
B.S. Mech. Eng.  
Purdue University  
Torrance, CA, US

**Marshall Jeffus**  
Sr. Mech. Eng.  
B.E.S.M. Georgia Tech.  
Bastrop, TX, US

**Bruce Jenkins**  
Aeronautical Eng.  
B.S., Northrop Univ.  
Sunnyvale, CA, US

**Ken Jenkins**  
B.S. Carnegie Mellon  
Elec. Engineering  
Oakland, CA, US

**Dan Jensen**  
B.S. Mech. Eng.  
Iowa State Univ.  
Rochester, MN, US

**Shawn Jensen**  
M.S. Eng. Staff  
M.S. Eng. Mgt. BSME  
New Mexico St. Univ.  
Madison, AL, US

**Karl Joerger**  
Mech. Design Eng.  
BSME, UT Austin  
Austin, TX, US

**Eric Johanson**  
B.S. Civil Eng.  
Polytechnic Inst. of Brooklyn  
Moab, UT, US

**Jonathan Johns**  
BSEE  
Racine, WI, US

**Christine Johnson**  
MSEE, MES  
M.S., Elec. Eng., Drexel  
Corvallis, OR, US

**Derek Johnson**  
E.I.T., C.W.I.  
B.S. Mech. Eng.  
Marlin, TX, US

**Eugene Johnson**  
B.S. Mech. Eng.  
SD School of Mines  
and Technology  
Allen, TX, US

**James Johnson**  
M.E. Environ. Eng.  
Univ. of Florida  
Ft. White, FL, US

**Nils Johnson**  
Alva, FL, US

**Philip Johnson**  
Sr. Principal Syst. Eng.  
M.S. Eng. Physics  
Durham, NH, US

**Tracy Johns**  
Engineering Staff  
B.S.E.E.T., Elec.  
Wash. St. Univ.  
Ogden, UT, US

**Curtis Jones**  
Ph.D. Elec. Eng.  
Purdue Univ.  
San Jose, CA, US

**James Jones**  
Civil Eng. Asst.  
B.S. Metall. Eng.  
Univ. of TX, El Paso  
Tucson, AZ, US

**Mark Jones**  
BEE  
Huntsville, AL, US

**Paul Jones**  
Maitland, FL, US

**Steven Jones**  
Prof. of Physics  
Emeritus, Sr. Eng.  
Ph.D., Physics,  
Vanderbilt Univ.  
Spring City, UT, US

**John Kabitzke**  
Telecom. Manager  
B.S. Ch. E.  
Des Moines, IA, US

**Gordon Kallenberg**  
M.S. Materials Eng.  
Drexel University,  
Katy, TX, US

**Laurence Kaplan**  
B.S. Civil Eng.  
CU Boulder  
Bethlehem, NH, US

**Jay Kappraff**  
Assoc. Prof. of Math.  
Ph.D., M.S., M.A.,  
B. Chemical Eng.  
South Orange, NJ, US

**Anthony Kassel**  
B.S. Elec. Eng.  
Lawrence Inst. of Tech.  
Hilo, HI, US

**Charles Kauffman**  
Ph.D. Aerospace Eng.  
Univ. of Michigan  
Whitmore Lake, MI, US

**Omid Kayvan**  
Project Engineer  
B.S. Civil Eng.  
Arizona State Univ.  
Rancho Palos Verdes,  
CA, US

**Alan Keefe**  
B.S. Mech. Eng.  
Bradley Univ.  
Broomfield, CO, US

**Doug Keenan**  
BSEE  
Rose-Hulman Inst.  
of Technology  
Indianapolis, IN, US

**Dean Kehoe**  
B.S. Mech. Eng., RPI  
Arlington, MA, US

**John Kelly**  
B.S. Mech. Eng.  
Univ. of Notre Dame  
East Lake, FL, US

**Steven Kennedy**  
M.S. Mech. Eng.  
Clarkson Univ.  
Niskayuna, NY, US

**Paul Kenyon**  
Eng. Consultant  
BSME  
Bridport, VT, US

**Michael Kerner**  
B.S. Elec. Eng.  
NYU Polytechnic  
Lenexa, KS, US

**Matthew Kern**  
Chem. Eng.  
Wilton, CT, US

**Dane Ketner**  
Physical Sci. Spec.  
Elec. Engineering  
Anchorage, AK, US

**Arash Keyashian**  
B.S. E.E., UC Davis  
Sacramento, CA, US

**Edward Key**  
B.S. Mech. Eng.  
Wash. St. Univ.  
Royal City, WA, US

**Ed Kideys**  
Elec. Eng.  
B.S. Elec. Eng.  
Sayreville, NJ, US

**Charlie Kienzle**  
Eng. Consultant  
B.S. Ind. & Syst. Eng.  
Atlanta, GA, US

**Jesse Kineman**  
Nuclear Engineer  
MS Nuclear Eng.,  
B.S. Physics  
Seattle, WA, US

**Paul Kinzelman**  
B.S. Elec. Eng.  
Carnegie-Mellon Univ.  
Peralta, NM, US

**Ken Kious**  
Elec. Engineer  
Walnut Creek, CA, US

**Mark Kirchenbauer**  
BSEE  
Walnut Creek, CA, US

**Ted Kircher**  
M.S. Elec. Eng.  
Univ. of Penn.  
Honey Brook, PA, US

**Michael Kirk**  
Staff Engineer  
MSEE, Eng.  
Univ. of Michigan  
Mount Prospect, IL, US

**Nathan Kleffman**  
BA Elec. Eng.  
Univ. of Iowa  
Chicago, IL, US

**Ben Kleiman**  
B.S. Elec. Eng.  
Austin, TX, US

**Barry Klein**  
M.S. Computer Sci.  
USC School of Eng.  
St. Louis, MO, US

## Engineering Professionals

### Eric Klein

Eng. Consultant  
M.S. Computer Eng.  
Santa Clara Univ.  
San Francisco, CA, US

### Rolando Klein

B Ind. Civil Eng.  
Univ. of Chile  
Palm Springs, CA, US

### Richard Knight

B.S. Eng. Physics  
Rochester, NH, US

### Tanya Knoop

B.S. Elec. Eng.  
Oakland, CA, US

### James Knowles

D. Eng., Mech. Design  
UC Berkeley  
Moss Beach, CA, US

### David Koester

B.S. Eng. Science  
Univ. of Texas, Austin  
Warwick, MA, US

### Siegmund Kosik

B.S.M.E.T.  
Penn State Univ.  
Andover, OH, US

### Benjamin Kowalewski

B.S. Mech. Eng.  
Magna Cum Laude,  
Univ. at Buffalo, SUNY  
West Seneca, NY, US

### David Kowalsky

B.S. Civil Eng.  
Georgia Inst. of Tech.  
Asheville, NC, US

### Mark Koziol

B.S. Elec. Eng.  
Univ. of Illinois  
Woodstock, IL, US

### Denis Krasnov

M.S. Equivalent  
Moscow Physics  
and Technic Inst.  
New York, NY, US

### Jonathan Krompegal

B.S. Arch. Eng.  
Univ. of Hartford  
Cromwell, CT, US

### Jason Kwa

B.S. Mech. Eng.  
Tufts University  
San Francisco, CA, US

### Tom Lacey

Aeronautical Eng. (Ret.)  
B.S. Aeronautical Eng.  
Purdue Univ.  
Weldon Spring, MO, US

### Joe Lackie

Fmr. Eng. Consultant  
M.S. Mech. Eng.  
SUNY at Buffalo  
Amherst, NY, US

### James Lake

BSEET  
Saint Louis, MO, US

### Bat Lang

M.S. Elec. Eng.  
Oklahoma St. Univ.  
Kyle, TX, US

### Joshua Lange

Facilities Engineer  
BA Eng.  
Mass Maritime Acad.  
Pawtucket, RI, US

### Richard Lange

Sr. Fire Alarm Tech.,  
SET, CT  
B.T., Elec. Eng. SUNY  
Winston Salem, NC, US

### John LaRondeau

Omaha, NE, US

### Jeffrey Larkin

B.S. Civil Eng.  
Univ. of Arizona  
West Chester, PA, US

### David Lasich

Project Manager  
B.S. Aerospace Eng.  
Carmichael, CA, US

### Jeffrey Latas

Engineer  
Aerospace & Mech.  
University of AZ  
Tucson, AZ, US

### Daniel Lawton

B.S. Information  
Systems Eng.  
US Military Acad.  
Dothan, AL, US

### P. Jerry Lee

B.S. Eng. Tech.  
Florida Agricultural  
and Mech. Univ.  
Orlando, FL, US

### Hans Lentz

B.S. Mech. &  
Manufact. Eng. Tech.  
N. Kentucky Univ.  
Alexandria, KY, US

### Peter Leonard

B. Eng.  
B.S., Mech. Eng.  
WPI, Worcester, MA  
Conway, NH, US

### Daren Lester

BSEE  
B.S., Eng.  
Widener Univ.  
Miami, FL, US

### Trinh "Todd" Le

B.S. Mech. Eng.  
Univ. of Illinois  
San Diego, CA, US

### Steven Lewis

MSEE,  
Electromagnetics  
& Optics, AFIT  
Colorado Springs, CO, US

### Jerome Liebler

EE (Ret.)  
BSEE, Wayne State, MI  
Science Hill, KY, US

### Nicholas Liguori

Engineer  
B.A., Civil Eng.  
Colorado St. Univ.  
Winston-Salem, NC, US

### Richard Linza

I.E., B.S. Elec. Eng.  
OSU  
Oklahoma City, OK, US

### Matthew Litwin

B.S. Computer Eng.  
Tufts University  
San Francisco, CA, US

### Edward Liu

Arch. Engineer  
Arch./Civil Eng.  
Drexel Univ.  
Philadelphia, PA, US

### Jerry Lobdill

B.S. Ch.E.  
Texas Tech.  
Fort Worth, TX, US

### Art Long

BSME  
Palatine, IL, US

### David Longino

B.S. Chem. Eng.  
Univ. of Mass.  
Brushton, NY, US

### Joe Lopes

CGC  
Civil Engineering  
Danbury, CT, US

### Leonard Losapio

BSME, Univ of Fla.  
M.S. Eng. Mgmt.,  
Fla. Tech  
Melbourne, FL, US

### William Loucks

BSEE & BSCS  
Chillicothe, OH, US

### Carolyn Lovin

B.S. Mech. Eng.  
Portland, OR, US

### Charles Lownes

Physician  
B.S. EE, MD  
Greensboro, NC, US

### David Lowry

Shedd, OR, US

### Gershon Luria

M.S. Ind. Eng.  
Ben Gurion Univ.  
San Lorenzo, CA, US

### Christopher Lynch

B.S., M.S. Civil Eng.  
Boulder, CO, US

### Dale Lynn

BSEE, MSEE  
Freehold, NJ, US

### Chris Machado

Factory Manager  
B.S. Manufacturing  
Engineering, OSU  
Medford, OR, US

### John Machado

BSEE Univ. of Mass.  
North Versailles, PA, US

### Douglas Mackenzie

BSEE  
Tollhouse, CA, US

### Eugene Madsen

BSEE MBA  
Fort Collins, CO, US

### Nicida Maerefat

Ph.D., Dr., Res. Scientist  
Sugar Land, TX, US

### Matthew Maillet

E.I.T.  
B.S., Mech. Eng.  
Univ. of Mass.  
New Bedford, MA, US

### Nick Maniatis

Eng. Consultant  
BSIE Arizona St. Univ.  
Portland, OR, US

### Randall Manyen

Mech. Engineer  
BSME  
Houston, TX, US

## Engineering Professionals

**Vicki Marburger**  
Engineer  
B.S. Elec. Eng.  
Corona, CA, US

**Paul Marcantoni**  
Engineering Staff  
B.S. Cert. Eng.  
Alfred; MS Civ/  
Env. Eng., GWU  
Fairfax, VA, US

**Jay Marchetti**  
Eng. Consultant  
M.S. Elec. Eng.  
Pittsburgh, PA, US

**William Marsden**  
B.S. Elec. Eng.  
Saint Louis, MO, US

**Todd Marshall**  
(Ret.) BSEE  
Bradley Univ.; Peoria  
Plantersville, TX, US

**Ernest Marth**  
B.S. Civil Eng.  
Indiana Inst. Tech.  
Fresno, CA, US

**Charles Martin III**  
E.I.T., Const. Insp.  
B.S. Env. Eng.  
SUNY ESF  
Lancaster, PA, US

**Larry Martinez**  
B.S. Applied Physics  
Hofstra Univ. NY  
Hobe Sound, FL, US

**Gilbert Martinez**  
Eng., Elec. NMSU  
Phoenix, AZ, US

**Jon Martinez**  
EIT  
B.A. Eng. & Econ.  
CO School of Mines  
Colorado Springs, CO, US

**Christopher Martini**  
BSME, B.S. Eng.  
Lawrenceburg, IN, US

**Nicholas Martino**  
M.S., Civil Struct. Eng.  
Cornell, Univ.  
Marina Del Rey, CA, US

**Steven Martinson**  
B.S. Mech. Eng. Tech.  
Montana State Univ.  
Idaho Falls, ID, US

**Dana Mason**  
B.S. Engineering  
Arizona St. Univ.  
Kiowa, CO, US

**Enver Masud**  
Eng. Mgmt. Cons.  
M.S. Ind. Eng.  
Arlington, VA, US

**Craig Maxwell**  
BSEE/Computer Sci.  
UCLA  
Groveland, CA, US

**Peter May-Ostendorp**  
Ph.D. Civil Eng.  
Univ. of Colorado  
Durango, CO, US

**Lawrence Mayka**  
B.S.E.E.  
B.S., Eng., UIC  
Aurora, IL, US

**Randolph Mayley**  
Engineer  
Bachelors, E.E. &  
Chem. E., LSU  
Easley, SC, US

**Nikolay Mayyak**  
M.S. Mech. Eng.,  
Helicopters  
Denver, CO, US

**Chris McCleary**  
M.B.A., B.S., Gen. Eng.  
USAF Academy  
Las Vegas, NV, US

**Christopher McCommons**  
B.S. Mech. Eng.  
Southern Pines, NC, US

**Jeremiah McCoy**  
Eng. Consultant  
B.A., Engineering  
Harvey Mudd College  
Redondo Beach, CA, US

**Travis McCoy**  
Design Engineer  
B.S. Civil Eng.,  
M.S. Structural Eng.  
Cincinnati, OH, US

**Richard McCracken**  
B.S. Computer Eng.  
Univ. of New Mexico  
Arroyo Hondo, NM, US

**Thomas McCranie**  
Engineer (Ret.)  
B.S., Engineering  
Louisiana Tech  
Irvine, CA, US

**Ryan McDonald**  
E.I.T., BSEE  
Minneapolis, MN, US

**Peter McDowell**  
Senior Design Engineer  
B.S., Engineering,  
Univ. of Oklahoma  
Oklahoma City, OK, US

**Dan McFarland**  
Principal Elec. Eng.  
BSEE  
Holden, MA, US

**Shawn Megarrah**  
B.S. Civil Eng.  
San Francisco St. Univ.  
Petaluma, CA, US

**Jeff McGary**  
B.S. Chem. E.  
Georgia Tech  
New York, NY, US

**Bob McGhee**  
B.S. Elec. Eng.  
Virginia Tech  
Lynchburg, VA, US

**Kathy McGrade**  
Engineer  
B.S. Materials Eng.  
NMIMT  
La Honda, CA, US

**Donald McGrath**  
B.S. Metallurgy, MIT  
Fallbrook, CA, US

**Hugh McInnish**  
B.S. in EE, Univ. of AL  
MA in Math, UAH  
Huntsville, AL, US

**Robert McNamara**  
B.S. Ceramics Eng.  
Missouri School Mines  
Arvada, CO, US

**Brian McNiff**  
Engineer  
B.S. Mech. Eng.  
Drexel Univ.  
Elkridge, MD, US

**Barry Mead**  
Electronics Eng.  
B.S. Elec. Eng. Tech.  
Tempe, AZ, US

**Steve Meadows**  
Software Engineer  
M.S., E. Engineering,  
Texas Tech Univ.  
Houston, TX, US

**Jack Meagher**  
Quality Engineer  
B.S. in Nuclear Eng.  
Lunenburg, MA, US

**Joseph Mellon**  
Eng. Graduate  
B.S. Engineering  
Millikin Univ., Decatur, IL  
Alpharetta, GA, US

**Toby Menard**  
B.S. Mech. Eng.  
Univ. of LA, Lafayette  
Lafayette, LA, US

**Billy Mendoza**  
B.S. Industrial Eng.  
Las Cruces, NM, US

**John Merry**  
E.I.T.  
B.A., EET  
Univ. of Maine  
Weare, NH, US

**David Metzger**  
B.S. Const. Eng.  
Purdue Univ.  
Mill Valley, CA, US

**Eli Meyer**  
Arch./Eng. Staff  
B.S. Aeronaut. Eng.  
Kings Beach, CA, US

**Jonah Meyer**  
B.S. Mech. Eng.  
Grove City College,  
Cambridge Springs, PA, US

**Mike Meyer**  
Mechanical Eng.  
Tempe, AZ, US

**Nathan Meyers**  
B.S. Computer Eng.  
Purdue University  
San Francisco, CA, US

**Barbara Michalec**  
Prof. Engineer  
BSEE San Diego St. Univ.  
San Diego, CA, US

**Phillip Middlebrooks**  
Sr. Mech. Eng.  
B.S. Ceramic Eng.  
Clemson Univ.  
Knoxville, TN, US

**Bill Miller**  
(Ret.) B.S. Mining Eng. CSM  
Fort Collins, CO, US

**Douglas Miller**  
Engineering Staff  
M.S. Materials Sci.  
Ohio State Univ.  
Bellevue, WA, US

**Jeffrey Miller**  
B.S. Mat. Science,  
Metall. Engineering  
Albertville, MN, US



## Engineering Professionals

### Mark Miller

Eng. Manager  
BSEE, Penn State  
Fulton, MD, US

### Todd Miller

Electrical/Controls  
Engineer & Designer  
B.S.E.E.T  
Columbus, OH, US

### Andrew Millikin

Eng. Consultant  
Elec. Engineering  
Laurel, MD, US

### Mike Mintz

Engineer  
ECE  
Carnegie-Mellon Univ.  
Harvard, MA, US

### Benjamin Mize

B.S. Mech. Eng.  
Auburn University  
Decatur, AL, US

### Kyle Mohny

B.S. Engineering  
Western Michigan Univ.  
at Kalamazoo  
Kalamazoo, MI, US

### Jose Molina-Navarro

Mechanical Engineer  
B.A. Mech. Eng.  
College Station, TX, US

### Aidan Monaghan

Engineering Staff  
B.S. Elec. Eng.  
Las Vegas, NV, US

### Mark Montgomery

Engineering Staff  
B.S., Arch. Eng., MSOE  
Phoenix, AZ, US

### Fernando Morales

B. Comp. S.  
Rancho Viejo, TX, US

### Christopher Moran

B.S. Civil Eng.  
Univ. Mass., Amherst  
Jackson, WY, US

### Carl Morgan

Engineering Staff  
B.S. Elec. Eng.  
Univ. of Arizona  
Tucson, AZ, US

### Stephen Moroney

B.S.M.E.  
Drexel University  
Monaca, PA, US

### Horacio Moronta

Elec. Eng., Intern Arch.  
B.S. Elec. Eng.  
NJ Inst. of Tech.  
Lusby, MD, US

### Zachary Morris

B.S. Civil Eng.  
Montana St. Univ.  
Bozeman, MT, US

### Jamal Mouline

Eng. Consultant  
B.S. Mech. Eng.  
ENSEM France  
Durham, NC, US

### Michael Moussa

EIT  
BSME  
Dallas, TX, US

### Jamal Mubarak

MD  
M.S., Engineering  
Univ. of Michigan  
Denton, TX, US

### Carl Muehlenbeck

Mechanical Engineer  
MSME  
Univ. of N. Dakota  
Peoria, AZ, US

### Ted & Nelisse Muga

Civil Engineer  
B.S. Civil Eng.  
S. Methodist Univ.  
San Diego, CA, US

### Ross Muir

B.S. Arch. Eng.  
Univ. of Colorado  
New York, NY, US

### Apekshit Mulay

Failure Analysis Eng.  
M.S. Elec. Eng.  
Texas Tech  
Richardson, TX, US

### John Muller

B.S. Civil Eng.  
Syracuse Univ.  
Bloomington, IN, US

### Paul Muller

Engineering Staff  
BSME  
St. Petersburg, FL, US

### Kyle Mullikin

Structural Eng., EIT  
B.S. Civil/Struct. Eng.  
Salt Lake City, UT, US

### Marc Murawski

Engineer  
B.S.E Aerospace  
Univ. of Michigan  
Ann Arbor, MI, US

### Esteban Murillo

B.S. Syst. Eng.  
US Naval Academy  
Manhattan Beach, CA, US

### Brendan Murphy

B.S. Fire Protection Eng.  
Univ. of Maryland  
Arlington, VA, US

### Robert Murphy

B.S. Elec. Eng.  
Univ. of Utah  
Fort Worth, TX, US

### Christopher Murtland

Manufact. Process Eng.  
B.S. Mech. Eng.  
Carnegie Mellon  
Los Angeles, CA, US

### Muhammad Nadeem

M.S. Civil Eng.  
San Jose State Univ.  
Little Ferry, NJ, US

### Alan Nakamura

BSME, BSCE  
Gardena, CA, US

### Robert Nanninga

BSME, Univ. of NM  
San Luis Obispo, CA, US

### Carroll Nast

BSEE  
Colfax, CA, US

### Branden Neal

BS Aerospace Eng.  
Univ. of Texas  
Arlington, TX, US

### Bart Neeb

Electrical Engineer  
B.S., Elec. Eng.  
Univ. of Cincinnati  
Farmington Hills, MI, US

### Jose Negrete

Eng. of Digital Music Prod.  
Monterrey Inst. of Tech.  
and Higher Education  
Mexico City, MX

### Dan Netko

B.S. Civil Eng.  
Univ. of Minnesota  
Big Lake, MN, US

### Don Neuschwander

Eng. of Mines  
CO School of Mines  
Livermore, CA, US

### John Nevin

B.E.E., M.S.  
Brooklyn, NY, US

### Jonathan Newell

Professor Emeritus,  
Research Engineer  
M.S. Elect. Eng.,  
Rensselaer Polytechnic  
Slingerlands, NY, US

### Tod Nguyen

B.S. Engineering/  
Computer Science  
Parker, CO, US

### David Nicholson

Windhunter Corp. Pres.  
BSME, Ohio State Univ.  
Columbus, Ohio  
Sun City Center, FL, US

### Andy Nihem

B.S. Eng.  
Oakland Univ.  
Farmington, MI, US

### Michael Niles

BSEE, MS Elec. Eng.  
and Comp. Sci.  
Mass. Inst. of Tech.  
Belmont, CA, US

### Kyle Nilsen

Eng. and Project Mngr.  
M.S. Mech. Eng.  
Wichita, KS, US

### Jeff Nixon

B.S., Mech. Eng.  
Colorado Univ., Boulder  
Chicago, IL, US

### Kyle Nobes

B.S. Ind. Eng.  
W. New England Univ.  
Granby, MA, US

### Daniel Noel

Electromechanical/  
Electronic Engineer  
MSEME  
Costa Mesa, CA, US

### Paul Nolan

Sr. Mech. Eng.  
BSME  
Santa Barbara, CA, US

### Peter Noll

B.S. Elec. Eng.  
Mankato, MN, US

### Robert Nordberg

Engineer  
B. Eng. Mathematics  
Univ. of Minnesota  
Richfield, MN, US

### Keith Noren

Chief Scientist  
Missile Def. Agency Targets  
M.S., Elec. Eng.  
Stanford Univ.  
Huntsville, AL, US



## Engineering Professionals

**Kenneth Norton**  
M.S. Mat. Sci. and Eng.  
Stanford Univ.  
Santa Rosa, CA, US

**Richard Norton**  
MA-PGDip BA  
IOPP, Eng.  
Ind. and Mat. Eng.  
Dallas, TX, US

**Zack Norwood**  
M.S. Elec. Eng. Syst.  
Univ. of Michigan  
Berkeley, CA, US

**Christopher Noyes**  
B.S. Mech. Eng.  
Cornell Univ.  
Tempe, AZ, US

**William Nunn**  
Engineer  
Casper, WY, US

**Amy O'Brien**  
Dr.  
D.Sci., Elec. Eng.  
GWU  
Alexandria, VA, US

**John O'Dowd**  
B. Eng.  
Nat. Univ. of Ireland  
Conroe, TX, US

**Tom O'Reilly**  
B.S. Metall. Eng.  
Lafayette  
Pearl River, NY, US

**Jim Oberg**  
(Ret)  
B.S. Mech. Eng.  
Oregon State Univ.  
Wilsonville, OR, US

**Charles Ogsbury**  
B.S. Civil Eng.  
Univ. of CO, Boulder  
Boulder, CO, US

**Jason Okerman**  
Eng. Grad. Student  
B.S. Elec. Eng.  
GCC, PA  
Atlanta, GA, US

**Benjamin Opp**  
B.S. Biomedical Eng.  
Robert Morris Univ.  
Allison Park, PA, US

**Mary Orazem**  
M.S. Engineering  
NCSU  
Raleigh, NC, US

**William Osborne Jr.**  
M.S. Elec. Eng.  
Univ. of Arkansas  
Fayetteville  
Raleigh, NC, US

**David Owens**  
Mech. Engineer  
B.S.M.E., Union College  
McAlester, OK, US

**David Pacheco**  
Civil Engineer  
BSCE  
Albuquerque, NM, US

**Anup Pandey**  
M.S. Env., Resource Eng.  
SUNY at Syracuse  
Austin, TX, US

**Bernardo Paratore**  
MSEE, Cons. & Patent Agnt.  
MSEE, Univ. of Maryland  
Doylestown, PA, US

**William Parker**  
Engineer (Ret.)  
Louisville, KY, US

**Matthew Parsons**  
B.S. Mech. Eng.  
Georgia Inst. of Tech.  
Austin, TX, US

**Richard Pasco**  
Ph.D. Elec. Eng.  
Stanford Univ.  
San Jose, CA, US

**Kathryn Pate**  
B.S. Ch.E.  
Univ. of Alabama  
Augusta, GA, US

**Bradley Pattee**  
Engineering Staff  
BSEE  
RIT, Rochester, NY  
Rochester, NY, US

**Sam Patterson**  
B.S. Mech. Eng.  
De Leon Springs, FL, US

**Susan Paulson**  
B.S. Mech. Eng.  
Univ. of Michigan  
Lafayette, CO, US

**Don Paulus**  
Chemical Operator  
Paper Sci. and Eng.  
Muskegon, MI, US

**Gaspar Paya**  
B.D. Ind. Design Eng.  
UPV, Spain  
Woodside, NY, US

**Michael Peck**  
M.S. Eng. Sci.  
UC Berkeley  
Santa Cruz, CA, US

**Andreina Pena-Isea**  
B.S. Civil Eng. (Honors)  
Katy, TX, US

**Ruben Pena**  
B.S., MS Mech. Eng.  
NJ Inst. of Tech.  
Jersey City, NJ, US

**Jason Penkethman**  
B. Engineering  
Aliso Viejo, CA, US

**Waldemar Perez**  
Master of Engineering  
Widener Univ.  
Chester PA  
Portland, OR, US

**Amanda Pernet**  
B.S. Mech. Eng.  
Univ. of Washington  
Pocatello, ID, US

**Sarah Perry**  
B.S. Civil Eng.  
B.S. Mining Eng.  
Mount Vernon, IN, US

**John Pershe**  
Engineering Staff  
M.S. Elec. Eng.  
Purdue St. College,  
Pennsylvania, PA, US

**Matthew Petering**  
Ph.D. Engineering  
Univ. of Michigan  
Shorewood, WI, US

**David Petersen**  
M.S. Civil Eng.  
Portland State Univ.  
Tigard, OR, US

**Peter Petersen**  
Pres./Eng. Consultant  
B.S. Aeronautical Eng.  
San Diego, CA, US

**Terry Petersen**  
B.S.E. Elec. Eng.  
Chandler, AZ, US

**Richard Peters**  
B.S. MET  
E. Washington Univ.  
Moscow, ID, US

**Kyle Petlock**  
B.S. Env. Eng.  
West Hills, CA, US

**Vincent Petrini-Poli**  
Professor  
M.S. Univ. of Paris, FRA  
Lisle, IL, US

**Mats Pettersson**  
M.Sc. EE, Chalmers  
Univ. of Tech., SWE  
Gdansk, PL

**Mike Phillipps**  
Electrical Engineer  
BSEE, WPI  
Lincoln, MA, US

**Thomas Phillips**  
B.S. Chem. Eng.  
UW, Seattle  
Palisade, CO, US

**William Phillips**  
M.S., Eng., SMU  
West Paterson, NJ, US

**Derick Pickle**  
B.S. Mech. Eng.  
Oklahoma St. Univ.  
Broken Arrow, OK, US

**Elizabeth Pinckney**  
B.S. Mech. Eng.  
N. Carolina St. Univ.  
Saluda, NC, US

**J. Pinheiro**  
Engineer  
Tampa, FL, US

**Stan Pique**  
Univ. of Tech.  
Compiègne, FRA  
B.S. Chem. Eng.  
New York, NY, US

**Donald Pitts**  
M.S. Agriculture Eng.  
Univ. of Arkansas  
Dr. of Philosophy in  
Eng., Univ. of Arkansas  
Laguna Woods, CA, US

**Carl Pivonka**  
Staff Engineer  
B.S. Civil Eng.  
Texas A&M  
Billings, MT, US

**John Ploss**  
B.S.  
Cal State, Hayward  
Oceanside, CA, US

**Walter Pogue, Jr.**  
B.S. Civil Eng.  
Va. Polytechnic Inst.  
Lancaster, PA, US

**Robert Polk**  
BSEE  
Phoenix, AZ, US

## Engineering Professionals

**Robert Poltz**  
Reliability Eng. Cons.  
MSE/BSE Syst. Eng.  
Palo Alto, CA, US

**Alex Pope**  
B.S. Elec. Eng.  
Christian Brothers  
College, Memphis  
Lakeland, TN, US

**Eugene Poplawski**  
B.S. Engineering  
Univ. of Pennsylvania  
Salt Lake City, UT, US

**Nolan Posey**  
Sr. Member of Tech. Staff  
M.S. Elec. Eng.  
UT Dallas  
Austin, TX, US

**Michael Posluszny**  
AASEET, AASSA  
Cambria, CA, US

**Eli Powell**  
B.S. Mech. Eng.  
Univ. of Nebraska  
Boulder, CO, US

**Stephanie Powers**  
B.S. Mech. Eng.  
Univ. of Florida  
Baltimore, MD, US

**Charles Pracna**  
B.S. E.E.  
Va. Tech. & State Univ.  
Rainier, WA, US

**David Pressman**  
Patent Lawyer  
B.S.E.E., J.D.  
San Francisco, CA, US

**Fred Price**  
B.S. Eng.  
El Paso, TX, US

**Sam Price**  
M.S. Aerospace Eng.  
Univ. of Missouri  
St. Louis, MO, US

**Chris Prima**  
B.S. Industrial Eng.  
Applegate, CA, US

**Greg Prinz**  
Mech. Eng.  
B.S.M.E.  
Texas A&M Univ.  
Oceanside, CA, US

**Joseph Prudell**  
Sr. Res. & Dev. Eng.  
M.S. Engineering  
Oregon State Univ.  
Corvallis, OR, US

**Sheldon Pryll**  
Project Manager  
B.S., Ceramic Eng.  
Alfred Univ.  
Brunswick, ME, US

**Paul Quillen**  
B.S. Elec. Eng.  
Va. Military Inst.  
Cartersville, GA, US

**Jacqueline Quirke**  
BSME, Univ. of Conn.  
Flagstaff, AZ, US

**Konstantin Radtchenko**  
Candidate of Tech. Sci.  
(Equiv. of US Ph.D.)  
Jersey City, NJ, US

**Jon Rafto**  
Fmr. US Naval Facil.  
Construction Mgr.  
B.S. Arch. Eng  
Univ. of Colorado  
Palomar Mountain, CA, US

**Warren Raftshol**  
Engineering Staff  
MSCE  
Northwestern Univ.  
Suttons Bay, MI, US

**Raghwendra Raghwendra**  
Bach. of Tech.  
Elec. Eng.  
Motilal Nehru Nat. Inst.  
of Tech., Allahabad India  
Tempe, AZ, US

**Scott Ragsdill**  
B.S. Mech. Eng.  
Rockwall, TX, US

**James Raines**  
Eng. Staff (Ret.)  
B.S. Eng., UCLA  
Tarzana, CA, US

**Steven Ramsey**  
Author, Publisher,  
Filmmaker  
B.S. Civil Eng.  
B.S. Microbiology  
Austin, TX, US

**Amir Rana**  
Mech. Engineer  
Engineering Staff  
B. Sci. Mech. Eng.  
Lafayette, LA, US

**Barb Randall**  
MSEE  
Rochester, MN, US

**Bruce Randall**  
Manufacturing Eng.  
B.S. M.E., Univ. Mass.  
Longmeadow, MA, US

**Timothy Rapp**  
B.S. Petroleum Eng.  
Louisiana State Univ.  
Reno, NV, US

**Andrew Rasmussen**  
B.S. Engineering  
Harvey Mudd College  
Los Angeles, CA, US

**Robert Rathbun**  
Eng. Consultant  
B.S. Arch. Eng.  
Denver, CO, US

**Kenneth Raymond**  
BSEE  
Northeastern Univ.  
Tucson, AZ, US

**Asif Raza**  
Mech. Eng.  
B. Sci., Mech. Eng.  
Minor, Statistics  
Memphis, TN, US

**Samuel Ready**  
BEE, Ga. Tech.  
MSBE, USC  
Chico, CA, US

**Seth Ream**  
B.S.E., Biomed. Eng.  
Iowa City, IA, US

**Tom Rechin**  
B.S. Ind. Eng.  
Purdue Univ.  
Cleveland, OH, US

**Lori Redhair**  
B.S. Mech. Eng.  
Ca. Polytech. St. Univ.  
Los Osos, CA, US

**Dave Redick**  
Pres.  
BSE-ME  
Univ. of Michigan  
Madison, WI, US

**John Redman**  
B.S. Elec. Eng.  
Univ. of Conn.  
Grafton, NH, US

**William Reed**  
Engineering Staff  
B.S. Chem. Eng.  
Northwestern Univ.  
Grayslake, IL, US

**Martin Regelsberger**  
Engineer  
Gleisdorf, Styria, AUT

**Joel Regen**  
Engineer  
BSEE  
Austin, TX, US

**Alan Reich**  
Elec. Eng.  
B.S. Gen. Eng. ISU  
La Center, WA, US

**Shaun Reinert**  
B.S. Elec. Eng. Tech.  
Penn State Univ.  
Wetumpka, AL, US

**David Remington**  
Elec. Eng./Mathematician  
BSEE, MSEE,  
M.S. Math, Univ. of Colo.  
Boulder, CO, US

**Michael Remington**  
Composite Design Eng.  
Aerospace Engineering  
Folsom, CA, US

**Attila Revesz**  
Sr. Member, IEEE  
Sr. Member, AIAA  
MSEE, Tech. Univ.  
of Budapest, Hungary  
Los Angeles, CA, US

**John Rexroat**  
Mfr. Engineer  
Walnut Creek, CA, US

**Temilade Rhodes-Vivour**  
B.S. Elec. Eng.  
North Carolina A&T Univ.  
Alexandria, VA, US

**Scott Richardson**  
Numerical Analysis Eng.  
B.S., M.S. Eng. Mech.  
Albuquerque, NM, US

**Greg Richter**  
Engineer  
BSEE, Georgia Tech.  
Ellijay, GA, US

**Nicholas Riedel**  
Aerospace Eng. Staff  
B.S., Mech. Eng., BYU  
Middletown, CT, US

**Patrick Riley**  
Electrical Engineer  
BSEE, U of MN IT  
Minneapolis, MN, US

**Scott Ring**  
Engineering Staff  
B.S. Marine Syst. Eng.  
Harpwell, ME, US

## Engineering Professionals

**William Rion**  
B.S. Chem. Eng.  
Clemson Univ.  
Hollywood, FL, US

**Kyle Ritter**  
Ph.D., MSE  
Univ. of Illinois  
Boise, ID, US

**Brian Rittermann**  
Software Engineer  
B.S. Engineering  
Case Western Reserve  
Honolulu, HI, US

**Luis Rivera**  
M.S. Chem. Eng.  
Univ. of South Florida  
Media, PA, US

**Jonathan Rivin**  
Ph.D. Engineering  
N. Carolina State Univ.  
Stevens Point, WI, US

**Alexandre Robert de  
Massy**  
Engineering Consultant  
B.A. Eng., U of Sherbrooke  
Montreal, QC, CA

**Barbara Roberts**  
M.S. Elec. Eng.  
Worcester Poly. Inst.  
Worcester, MA, US

**Jeff Roberts**  
B. Mech. Eng.  
Georgia Tech.  
Santa Maria, CA, US

**Matthew Roberts**  
E.I.T.  
B.S. Env. Eng.  
Flagstaff, AZ, US

**Gene Robinson**  
B.S. Ind. Eng.  
Oklahoma Univ.  
Savannah, GA, US

**Mark Robinson**  
Mechanical Eng.  
BSME  
Wilsonville, OR, US

**Stephen Roby**  
Electrical Project Eng.  
BSEE, WV Univ.  
Weirton, WV, US

**Roland Rodriguez**  
Engineer  
BSEE & MSEE,  
Georgia Tech.  
Keller, TX, US

**Timothy Roebke**  
B.S. Mech. Eng.  
UW at Madison  
Mukwonago, WI, US

**Douglas Rogers**  
BE CpE  
Boston, MA, US

**James Rogers**  
Mine Electrical Eng.  
B.S.E.E., BYU  
Lyman, WY, US

**Janet Rogers**  
B.S. Civil Eng.  
Danville, CA, US

**Larry Rosenberg**  
B.S. Mech. Eng.  
Syracuse Univ.  
Tahoe City, CA, US

**Tom Rose**  
B.S. Civil Eng.  
San Luis Obispo, CA, US

**Patrick Rossi**  
B.S. Chem. Eng.  
Michigan Tech. Univ.  
Lake Mary, FL, US

**Vinnie Rossi**  
Electrical Engineer  
B.S. in EE  
SUNY Binghamton  
Durham, CT, US

**Matt Rowland**  
B.S. Mech. Eng.  
Univ. of Missouri  
St. Louis, MO, US

**Rick Royer**  
Process Eng. Mngr.  
MBA UOP, BSIE  
Southern Ill. Univ.  
Chandler, AZ, US

**Henry Rozumski**  
Aerospace Eng./Analyst  
M. Sci.  
Aiea, HI, US

**Daniel Ruffoni**  
B.S. Civil Eng.  
Santa Clara Univ.  
San Ramon, CA, US

**Richard Ruggles**  
B.S. Eng.  
Univ. of West Fla.  
Davie, FL, US

**Alan Rupp**  
Engineering Staff  
M.S. Elec. Eng.  
Ruskin, FL, US

**David Russell**  
EIT, B.S. Civil Eng.  
Univ. of Kentucky  
Nashville, TN, US

**Charles Rust**  
M.S. Civil Eng.,  
B.S. Arch. Eng.  
Univ. of Texas  
Fort Worth, TX, US

**Eric Ruston**  
B.S. Civil Eng.  
Penn. State Univ.  
San Francisco, CA, US

**Paul Ruttencutter**  
Electronics Engineer  
Portland, OR, US

**Kevin Ryan**  
Laboratory Manager,  
Co-Editor, 9/11 Journal  
B.S. Chem.  
Certified Quality Eng.  
Bloomington, IN, US

**Kris Rytlewski**  
Automotive Design  
Release Engineer  
B.S. Mech. Eng.  
SVSU Mich.  
Flint, MI, US

**Neil Saaty**  
Sr. Software Eng.  
B.S., Elec. Eng.  
San Pedro, CA, US

**Simon Saba**  
B.S. Engineering  
San Jose, CA, US

**Ronald Sabin**  
B.S. Chem. Eng.  
Rensselaer Poly., NY  
Boscawen, NH, US

**Bert Sacks**  
B.S. Ind. & Elec. Eng.  
Seattle, WA, US

**William Sakowski**  
M.S. Civil Eng.  
Stanford Univ.  
Abiquiu, NM, US

**Hussein Sakr**  
Design & Syst. Eng.  
BSEE, Cal Poly  
Diamond Bar, CA, US

**Maziar Salehi**  
Eng. Consultant  
B.S. Mech. Eng.  
UC Santa Barbara  
Redondo Beach, CA, US

**Asher Salomon**  
Eng. In Training  
Product Reliability  
B.S. Mech. Eng., WNEC  
Bethlehem, NH, US

**Greg Salyards**  
B.S. Naval Eng.  
US Naval Academy  
Atlantic City, NJ, US

**Vytautas Sanborn**  
BSEET  
Oregon Inst. of Tech.  
Yacolt, WA, US

**Mario Sanjuan**  
BSME  
Rensselaer Polytech.  
Institute  
Oswego, IL, US

**Vincent Santaiti**  
B.S. Mech. Eng.  
NJIT, NJ  
Monroe, NY, US

**Aejaz Sarehwala**  
Metall./Steel Const.  
B.S., M.S.  
Univ. of Baroda,  
Metallurgy Eng.  
Dublin, CA, US

**Rob Sargent**  
BSME UNH,  
MSCIM BYU  
Chelmsford, MA, US

**Meral Sarper**  
Mech. Engineer  
B.S. Mech. Eng.  
Univ. of Colorado  
Pueblo West, CO, US

**Kerry Sartain**  
Engineering Staff  
BEE, Elec. Eng.  
Georgia Tech.  
Acworth, GA, US

**Mark Savellano**  
Res. Asst. Prof., Ph.D.  
Ph.D., Biomed. Eng.  
Univ. of Michigan  
Hanover, NH, US

**Allen Saye**  
Const. Eng. Consultant  
B.S. Civil Eng., MIT  
Beaverton, OR, US

**Saleh Sbenaty**  
Professor  
Ph.D. Engineering  
Murfreesboro, TN, US

**Skylar Scaling**  
B.S. Elec. Eng.  
Oklahoma State Univ.  
Colorado Springs, CO, US

## Engineering Professionals

### Bryan Scarborough

B.S. Engineering  
Duke University  
Atlanta, GA, US

### Dick & Jan Scar

BSAE  
Buena Vista, CO, US

### Frank Scavelli

B.S. Civil Eng. Tech.  
Fairleigh Dickinson Univ.  
Newfield, NJ, US

### James Schaeffer

Engineering Staff  
B.S. Mech. Eng.  
Clarkson Univ.  
Rosendale, NY, US

### David Schanzle

P.E.  
B.S. Chem. Eng.  
Vanderbilt Univ.  
Manor, TX, US

### Daniel Schilling

Mech. Engineer  
BSIE  
Minneapolis, MN, US

### Harriet Schmidt

M.S. Mech. Eng.  
Portland St. Univ.  
Hillsboro, OR, US

### Michael Schmidt

BSGE, Project Mngr.  
B.S. Eng., Univ. of Ill.  
Oak Park, IL, US

### Laura Schneider

Patent Agent  
B.S. Mech. Eng.  
Erie, CO, US

### Benjamin Schultz

B.S. Civil Engineering  
Marquette Univ.  
Milwaukee, WI, US

### Alan Scott

B.S. Elec. Eng.,  
Univ. of Cincinnati  
M.S. Eng., Catholic Univ.  
Seattle, WA, US

### Stephen Seccombe

Eng. Consultant  
BS, MS, EE in Elect. Eng.  
MIT  
Foster City, CA, US

### Andrew Sellars

B.S., M.S.  
Aerospace Eng.  
Univ. of Arizona  
Mesa, AZ, US

### Stanley Serwon

Chemical Eng.  
B.S.  
Akron, NY, US

### Joseph Sessions

Mech. Eng.  
Georgia Tech.  
Sheridan, OR, US

### Steve Settles

Systems Engineer  
B.S. Physics, SHSU  
B.S., EE, Texas A&M  
Cedar Park, TX, US

### James Seymour

Degreed Mech. Eng.  
B.S. Eng. Sci.  
Univ. of Cincinnati  
Carrollton, TX, US

### Jeffrey Shadley

B.S., M.S. Elec. Eng.  
The Univ. of Tulsa  
Tulsa, OK, US

### Adam Shaffer

B.S.  
Edwardsville, IL, US

### Franklin Shaffer

B.S., M.S. Mech. Eng.  
West Virginia Univ.  
Pittsburgh, PA, US

### Matthew Shaffer

Mech. Engineer  
B.S.M.E. U of Akron  
Engineering Intern  
Hilliard, OH, US

### Ashok Shah

Senior Staff Engineer  
B.Sc. Elec. Eng.  
M.Sc. BioMed Eng.  
Gloucester City, NJ, US

### Eddy Shalom

Aerospace Tech. Mngr.  
BSEE, B.S. Physics  
Santa Clarita, CA, US

### Alexander Shankle

Digital Design Eng.  
B.S. Elec. Eng., CTU  
Louisville, KY, US

### Frank Shap

Local Govt. Mngr.  
Degreed Engineer  
BSEE Univ. of Maryland  
Swanton, MD, US

### Steven Shap

B.S. Elec. Eng.  
Univ. of Maryland  
Fernandina Beach, FL, US

### M. Anwar Shariff

Eden Prairie, MN, US

### Mike Sharkey

B.S. Industrial Eng.  
GMI Kettering Univ.  
Park Rapids, MN, US

### Blake Shatto

B.S. Civil Eng.  
Florida St. Univ.  
St Petersburg, FL, US

### Larry Shelton

B.S. Mech. Eng.  
Univ. of Illinois  
Grand Blanc, MI, US

### Jason Shem

B.S. Elec. Power  
Eng. Technology  
The Univ. of Houston  
Saint Paul, MN, US

### Mark Shepherd

Electrical Engineer  
BSEE, SF State Univ.  
Portland, OR, US

### Manny Sherbiny

Electrical Engineer  
B.S. Elec. Eng.  
Univ. Alexandria, Egypt  
Van Nuys, CA, US

### Adam Sherman

Engineering Staff  
B.S.M.E., UC Davis  
Newark, CA, US

### Kenneth Sherman

M.S. Elec. Engineering  
Univ. of California  
Austin, TX, US

### Jeffrey Sherzer

B.S. Elec. Engineering  
Lehigh Univ.  
Highland Park, NJ, US

### John Shinn

Ph.D., Chemical Eng.  
Pleasant Hill, CA, US

### Stuart Shively

B.S., ME  
Univ. of Texas  
Bethesda, MD, US

### Dan Shockley

B.S. Elec. Eng.  
Univ. of New Mexico  
San Diego, CA, US

### David Shore

Mech. Eng. Staff  
M.S. Engineering  
Univ. of Utah  
Albuquerque, NM, US

### Dave Shreeve

B.S. Electrical &  
Electronics Eng.  
Oregon St. Univ.  
Seattle, WA, US

### Brian Shriver

B.S. Mech. Eng.  
Lehigh Univ.  
Walpole, NH, US

### Dennis Shuman

Engineering Scientist  
Ph.D., Elec. Eng.  
Univ. of Florida  
Gainesville, FL, US

### Daniel Sias

Elec. Eng., UCLA  
West LA, CA, US

### Richard Sieron

Eng. Consultant  
BSEE  
Milford, CT, US

### Daniel Silin

B.S. Engineering  
Mill Valley, CA, US

### Daniel Silva

Software Eng. (Ret.)  
M.S. Mech. Eng.  
Stanford Univ.  
San Rafael, CA, US

### John Silva

Ph.D., Eng. Science  
UC San Diego  
San Diego, CA, US

### David Simchock

B.S. Mech. Eng.  
Rutgers Univ.  
Titusville, NJ, US

### Dave Simeone

B.S.E.E.  
Univ. of Pittsburgh  
Bradenton, FL, US

### Michael Simister

B.S. Elec. Engineering  
Dallas, TX, US

### Colin Simmons

B.S. Eng. Physics  
UCO Edmond, OK  
Guthrie, OK, US

### Raymond Simmons

B.S. Arch. Eng.  
Univ. of Miami  
Coral Gables, FL, US

### Zachary Simmons

B.S. Mech. Eng.  
Texas A&M Univ.  
Dallas, TX, US

## Engineering Professionals

### William "Evan" Simon

M.S. Biosystems &  
Agricultural Eng.  
Univ. of Kentucky  
Lexington, KY, US

### Albert Skane

Systems Eng.  
BSEE & B.S., MIT  
MA Econ., Univ. of MD  
Boston, MA, US

### Mike Skarlupka

B.S. Mech. Eng.  
Univ. of WI, Madison  
Freeport, IL, US

### James Smajstrla

B.S.M.E., Texas A&M  
Round Rock, TX, US

### Philip Smilgin

B.S. Elec. Eng.  
Florida St. Univ.  
Tucson, AZ, US

### Austin Smith

B.S. Civil Eng.  
Univ. of Wyoming  
Bear River, WY, US

### Don Smith

B.S. Mech. Eng.  
Cal Poly, SLO  
Arroyo Grande, CA, US

### Marshall Smith

Eng. Consultant  
BA Physics, BA Mech.  
& BA Elec. Eng.  
San Jose, CA, US

### Michael Smith

B.S. Elec. Eng. Tech.  
Atlanta, GA, US

### Stephen Smith

B.S. Eng., UAB  
Fort Payne, AL, US

### Paul Smola

B.S. Eng., UMass  
Bedford, NH, US

### Todd Smutz

Project Manager,  
The Kroger Company  
B.S. Civil Engineering  
Denver, CO, US

### Kevin Snedeker

Engineering Staff  
B.A. Civil Eng.  
Univ. of Hartford  
Bronx, NY, US

### Chandler Sobel- sorenson

B.S. Computer Eng.  
Univ. of Arizona  
Tucson, AZ, US

### Sergei Sochava

M.S. Eng./Radiophysics  
Leningrad Polytec Inst.  
Sunnyvale, CA, US

### Mauricio Solorzano

B.S. Electronic Syst. Eng.  
El Instituto Tecnológico de  
Monterrey Mexico  
McKinney, TX, US

### Steven Sorrell

Eng. Consultant  
B.S. Nuclear Eng.  
Iowa State Univ.  
Idaho Falls, ID, US

### John Sotelo

BSME, MD, Mech. Eng.  
La Mes, CA, US

### James Soto

B.E. Elec. Eng., CCNY  
Haverstraw, NY, US

### Sam Soubjaki

B.E. Mech. Eng.  
Victoria Univ. at  
Melbourne Australia  
Huntington Woods, MI, US

### John Speidel

Eng. Manager  
B.S. Pet. Eng.  
B.S. Mech. Eng.  
Visalia, CA, US

### Stephen Sprout

B.S. Elec. Eng.  
Drexel Inst. of Tech.  
Glenside, PA, US

### Raghavendra Sridhar

Bach. of Eng., Elec.,  
Comm. Engineer  
Visveswaraiiah Tech.  
Univ. Belgaum,  
Karnataka, India  
Irvine, CA, US

### Victoria St. Ives

B.S. Chem. Eng.  
Lehigh University  
Randolph, NJ, US

### Sanfod Staab

EECS/Systems  
UC Berkeley  
Woodinville, WA, US

### Robert Stahl

Engineering Staff  
B.A. Engineering  
Univ. of Alabama  
Birmingham, AL, US

### Michael Stathopoulos

Engineering Staff  
BS Mfg. Eng.  
C.I.M., Ball State  
Round Rock, TX, US

### Rick Stauf

B.S.M.E Cal Poly  
Lancaster, CA, US

### Jim Stearns

Engineering Staff  
M.S. Chem. Eng.  
USC, Columbia  
San Francisco, CA, US

### Rob Steinhofner

M.S. Mech. Eng.  
UW Madison  
Soldiers Grove, WI, US

### William Steinmetz

Engineering Staff  
M.S. Elec. Eng.  
Univ. New Mexico  
Walnut Creek, CA, US

### Joseph Sterczala

B.S. Chem. Eng., WPI  
Worcester, MA, US

### Bruce Stevenson

Eng. Specialist  
BSEE  
Saint Charles, MO, US

### William Stoddard III

Design Engineer  
B.S. Eng. Tech.  
Lawrence Tech. Univ.  
Allen Park, MI, US

### Gere Stokoe

B.S. Eng. Tech.  
Cal Poly, SLO  
Ormond Beach, FL, US

### Stephen Stollmack

Ph.D. Mngt. Syst. Eng.  
Ohio State University  
Prescott, AZ, US

### Geoffrey Stone

BSChE, Clarkson College  
Black Mountain, NC, US

### Jason Storer

B.S. Civil Eng.  
Univ. of Oklahoma  
Shady Point, OK, US

### Jeffrey Strahl

Engineering Staff  
B.E. Mech. Eng., CUNY  
Berkeley, CA, US

### Christopher Straka

B.S. Aerospace Eng.  
Embry-Riddle Aero. Univ.  
Littleton, CO, US

### Mike Strasser

Eng. Consultant  
Masters of Eng.  
Stanford Univ.  
San Francisco, CA, US

### William Streety

Eng. Consultant  
B.S. Mech. Eng.  
College Station, TX, US

### Eric Strid

Chief Tech. Officer  
MSEE  
Portland, OR, US

### William Stubbeman

MD, BSE, Physician, Mech.  
and Aerospace Engineer  
MD, Columbia  
BSE Eng. Princeton Univ.  
Los Angeles, CA, US

### Robert Stuemky

(Ret.)  
BSME, OSU  
Stillwater, OK  
Rye, CO, US

### David Sullivan

Eng. Consultant  
B.S. Engineering  
Vanderbilt Univ.  
Sarasota, FL, US

### Henry Sullivan

Bach. Civil Eng.  
Georgia Tech  
Cumming, GA, US

### Shaun Sullivan

B.S. Civil Eng.  
Groton, MA, US

### Micheal Suominen

Melbourne, FL, US

### Peter Swan

JD Law, B.S. Ind. Eng.  
Stanford Univ.  
Wilsonville, OR, US

### Mike Swatek

Principal Engineer  
B.S. Mech. Eng.  
Univ. of Oklahoma  
Claremore, OK, US

### Chris Sweeney

B.S. Ind. Engineering  
W. New England Univ.  
Waltham, MA, US

### John Sweet

Eng. Consultant  
B.S. Civil Eng.  
Manhattan College  
Brooklyn, NY, US



## Engineering Professionals

### Garrett Swindlehurst

Student  
B.S. Chem. Eng.  
North Carolina SU  
Saint Paul, MN, US

### Martin Szakodyn

Electrical Engineer  
B.S. Elec. Eng., SIUC  
Naperville, IL, US

### Anthony Szamboti

Mechanical Engineer  
BSME  
Blackwood, NJ, US

### Leo Szczesny

Telecom Circuit Des.  
B.E.E. Gannon Univ.  
Coudersport, PA, US

### Michael Tannel

B.S. Engineering  
UW Milwaukee  
Cudahy, WI, US

### Sean Tasdemiroglu

Process Engineer  
B.S. ChE, Texas Tech  
Los Angeles, CA, US

### William Tatro

B.S. Mech. Eng.  
Univ. of Vermont  
Winooski, VT, US

### Amanda Taylor

M.S. Engineering  
Univ. of Texas  
Austin, TX, US

### Edwin Taylor

E.I.T., Eng. Consultant  
Hampton, VA, US

### Mat Taylor

M.Arch, MS.CE,  
M.Arch, Oregon,  
MS.CE, Colorado  
Niwot, CO, US

### Philip Taylor

Eng. Professor  
Ph.D. Systems Eng.  
Indian Wells, CA, US

### Roy Taylor

B.S. Mech. Eng.  
Univ. of Rochester  
Scottsville, NY, US

### Sachin Terdalkar

Ph.D. Mech. Eng.  
Univ. of Arkansas  
Fayetteville, AR, US

### Robert Terhune

B.S. Elec. Engineering  
Univ. of Nevada  
Sparks, NV, US

### David Terpstra

B.S. Elec. Eng. Tech.  
Purdue Calumet  
Spring Green, WI, US

### John Tharakan

Ph.D. Eng. Science  
(Biochemical Eng.)  
UC San Diego  
Washington, DC, US

### David Thomas

MSEE Elec. Eng.  
Purdue University  
Wellington, CO, US

### Neil Thomas

B.S. and Ph.D.  
Mech. Engineering,  
Stanford Univ.  
Los Angeles, CA, US

### Michel Thomet

Ph.D. Electrical Eng.  
Carnegie-Mellon  
Lafayette, CA, US

### George Thompson Jr.

Electrical Engineer  
BSEE  
Charlotte, NC, US

### Jonathan Thompson

B.S. Engineering  
Clemson University  
Seattle, WA, US

### Dave Thomson

Engineer  
B.S. (w/honors)  
Fremont, CA, US

### Mark Thornley

B.S. Mech. Eng.  
Michigan Tech. Univ.  
Mukilteo, WA, US

### Henry Tieleman

Prof. Emeritus ESM Dept.  
Virginia Tech.  
Ph.D. Civil Engineering  
Riner, VA, US

### Jan Tijmes

E.I.T.  
Agri./ Civil Engineer  
Houston, TX, US

### Clara Ting

Engineering Staff  
MS, MBA  
Mountain View, CA, US

### John Tobak

Electrical Engineer  
M.S. Elec. Eng.  
Stevens Tech.  
Bernardsville, NJ, US

### Joseph Urcinas

B. Engineering  
Flemington, NJ, US

### Todd Urick

B.S. Civil & Env. Eng.  
UC Davis  
Davis, CA, US

### Juan Urreta

B.S. Civil Eng.  
University of Texas  
Irving, TX, US

### Edward Ussery

EIT  
BSME UCLA,  
MMS Harvard Med. Sch.  
Irvine, CA, US

### Tapio Vahamaki

B.S. Elec. Eng. Tech.  
DeVry Institute  
San Diego, CA, US

### Steven van Geldern

B.S. Mech. Eng.  
W. New England Univ.  
Norwalk, CT, US

### Brian Van Roy

M.S. Engineering  
Milwaukee, WI, US

### Corey Van Sickle

B.S. Mech. Eng.  
Ohio Northern Univ.  
New Philadelphia, OH, US

### Scott Van Sickle

B.S. Petroleum Eng.  
Louisiana St. Univ.  
Oklahoma City, OK, US

### Peter Van Zant

M.S. Elec. Engineering  
Stanford University  
Bellevue, WA, US

### Wilson Vargas

EIT  
Civil Engineering  
Weston, FL, US

### George Vega

Engineer  
BSE, Arizona St. Univ.  
Santa Rosa, CA, US

### Bob Vercler

B.S. Agricultural Eng.  
Univ. of Illinois, UC  
Cullom, IL, US

### Augustine Verrengia

EIT  
B.S. Civil Eng.  
UT San Antonio  
Austin, TX, US

### Joseph Verrette

Nuclear Syst. Operator  
Marine Eng. Operations  
Chester, NH, US

### Adrienne Via

B.S. Civil Eng.  
Johns Hopkins Univ.  
Columbia, MD, US

### Timo Villgren

Engineer  
Bachelor of Info. Tech.  
Ruutana, FI

### William Voegelé

B.S. Mechanical Eng.  
UC Berkeley  
Pittsburgh, PA, US

### James Vogt

Bach. of Electrical Eng.  
Keene, NH, US

### Derek Voll

BSME  
Pueblo, CO, US

### Steve Voras

B.S. Mech. Eng.  
Univ. of South Florida  
Clearwater, FL, US

### Mitch Waite

B.S. Const. Eng. Tech.  
Montana St. Univ.  
Brighton, CO, US

### Stephen Waite

B.S. Engineering  
Duke University  
Rutland, VT, US

### Richard Walker

B.S. Eng. & Applied Sci.  
California Inst. of Tech.  
Palo Alto, CA, US

### Robert Walker

Measurement Spec.  
B.S. Engineering  
Northrup Univ.  
Rushville, IL, US

### Sam Walker

B.S. Comp. Info. Sci.  
College of Eng.,  
Ohio State Univ.  
Marietta, GA, US

### Robert Walter

P.E.  
SBME MIT  
Rochester, NY, US

### David Walton

B.S. Bus./Eng. Admin.  
M.I.T.  
Monterey, CA, US



## Engineering Professionals

### Kerry Wang

B.S. Chemical Engineering  
Rice University  
Minneapolis, MN, US

### Liyan Wan

B.S. Industrial Engineering  
Chicago, IL, US

### Andrew Ward

B.S. Chemical Engineering  
Drexell University  
Blackwood, NJ, US

### Kathy Warnock

M.S. Environmental Engineering  
University of Tennessee  
Sacramento, CA, US

### William Washburn

Project Manager (Ret.)  
MSEE Univ. of Southern CA  
Santa Maria, CA, US

### Kent Watsen

Engineering  
University of Virginia  
Leesburg, VA, US

### Derek Watson

Helensburgh, GB

### Dennis Watts

Systems Engineer  
BSEE  
Torrance, CA, US

### Dale Webb

Mechanical Eng.  
B.S. Mech. Eng.  
New Hartford, CT, US

### Brad Weber

B.S. Electrical Eng.  
Louisiana St. Univ.  
Chandler, AZ, US

### Doug Wehrly

Eng. Consultant  
B.S. Eng. Tech.  
Texas A&M  
Austin, TX, US

### Ralph Weiland

Dr., Company President  
BASc., MA.Sc., Ph.D.  
(Ch.E., Toronto)  
Coalgate, OK, US

### Greg Weinfurter

Elec. Design Specialist,  
Computer Admin.  
AEE, Hocking College  
BSS, Ohio Univ.  
Albany, OH, US

### Gary Weinstein

Ph.D. Civil Eng.  
Polytechnic Univ.  
Brooklyn, NY, US

### Bruce Wells

BSEE  
Albuquerque, NM, US

### Ben Werner

B.S., M.S. Electrical Engineering  
UC Santa Barbara  
Santa Barbara, CA, US

### Tom Westbrook

Engineering Staff  
B.S. Electrical Engineering  
Mesa, AZ, US

### Ronny White

B.S. Engineering Technology  
Austin, TX, US

### Scott Wickershiem

B.S. Mechanical Engineering  
Michigan Tech. University  
Detroit, MI, US

### Christopher Wilder

Mech. Design Engineer  
B.S.M.E.  
Cal Poly SLO  
Cloverdale, CA, US

### Joseph Wildhagen

Manufacturing Eng.  
BSBA, Cert. in Manuf. Eng.  
UCLA  
Pearblossom, CA, US

### John Willcutts

Engineering Staff  
B.S. Electrical Engineering  
M.E. Agricultural Engineering  
Athens, GA, US

### Matthew Williams

EIT  
B.S. Geological Engineering  
UW Madison  
Madison, WI, US

### Clark Willison

B.S. Electrical Eng.  
UC at Santa Barbara  
Atherton, CA, US

### Paul Wills

B.S. Mechanical Eng.  
CA Polytechnic St. Univ.  
Santa Barbara, CA, US

### David Wilmot

Industrial Eng. (Ret.)  
B.S. Industrial Eng., R.I.T.  
Bailey, NC, US

### Alan Wilson

B.S. Civil Engineer  
Rutgers University  
Edgartown, MA, US

### Nathaniel Wilson

BSMET Central Washington Univ.  
West Richland, WA, US

### Craig Winters

Engineer Technician  
MSCE NM St. University  
Las Cruces, NM, US

### Larry Witham

Sr. Mechanical Engineer  
BSME U.C. Berkeley  
Las Vegas, NV, US

### Nicholas Woebcke

Software Engineer  
B.S.E.E., M.S.C.S. Tufts Univ.  
Arlington, MA, US

### Joel Wolensky

B.S. Electrical Engineering  
Carnegie Mellon University  
M.S. Electrical Engineering  
George Washington University  
Macungie, PA, US

### Marshall Wolfe

BSCE  
St. Augustine, FL, US

### Scott Wolford

B.S. Aeronautical Engineering  
Embry-Riddle Aeronautical Univ.  
Grand Junction, CO, US

### Frank Wolstencroft

Ph.D. Industrial Metallurgy  
Mount Kisco, NY, US

### Michael Wong

B.S. Mechanical Engineering  
UC Davis  
San Francisco, CA, US

### Ben Woodason

B.S. Mechanical Engineering  
N. Little Rock, AR, US

### David Wood

Sr. Design Engineer  
BSEE  
Bothell, WA, US

### David Wood

Mechanical Engineer  
B.S. Mechanical Engineering  
University of Buffalo  
Salem, MA, US

### Thomas Wood

B.S. Electrical Engineering  
University of Missouri  
Columbia, MO, US

### Frank Woolridge

B.S. Electrical Engineering  
Univ. of Illinois  
Escondido, CA, US

### Michael Woon

Engineering Staff  
M.S. Mech. Eng.  
Univ. of Michigan  
Ypsilanti, MI, US

### Brian Wright

Author  
BSME  
Novi, MI, US

### Edward Yang

Ph.D. Electrical Eng.  
Univ. of Southern CA  
San Jose, CA, US

### Carl Young

Director  
B.S. Eng., U of A  
Edmonton, AB, CA

### Mohammed Younis

B.S. Industrial Eng.  
Univ. of South Florida  
Tampa, FL, US

### Stephen Yurasits

M.S. Engineering  
Columbia Univ. NYC  
Burlington, VT, US

### Cedric Zabriskie

US ARMY LTC (Ret.)  
MSEE Georgia Tech.  
Curtis, WA, US

### Jason Zaepfel

B.S. Mech. Eng. Tech.  
Buffalo State College  
Buffalo, NY, US

### Theodore Zagurski Jr.

BSEE EMBA  
Centennial, CO, US

### Jorge Zavala

BSET, Cal Poly SLO  
Alameda, CA, US

### Jack Zeiger

B.S. Mechanical Eng.  
Univ. of Washington  
Olympia, WA, US

### Joseph Zenner

Chemical Engineer  
Houston, TX, US

### Robert Zerbe

B.S. Plastics and  
Polymer Eng. Tech.  
PA College of Tech.  
York, PA, US

### Gene Zilberstein

B.S. Elec. Eng., MIT  
M.S. Elec. Eng.,  
Portland St. Univ.  
Portland, OR, US

### Bryan Zink

B.S. Electrical Eng.  
Kenosha, WI, US

**Non-U.S. Architects and Engineers and Architectural and Engineering Professionals**

**Björn Aadnøy**  
Field Engineer  
Degree in Automatics  
Stenungsund, SE

**Chaâk Abdellaoui**  
M.Sci. Mech. Eng.  
Ecole Polytechnique  
Montreal, Canada  
Lachine, QC, CA

**El Mourabit Abdelwahad**  
IT Engineer  
Paris, FR

**Pavel Abdur-Rahman**  
Eng. Consultant  
Eng., Univ. of Toronto  
Toronto, ON, CA

**Steve Abercrombie**  
Bach. of Applied Science  
(Civil Engineering)  
Lindsay, ON, CA

**Rami Abu-Ayyash**  
Lon, ON, CA

**Ronald Ackroyd**  
B.Sci. Agriculture Eng.  
University of Alberta  
M.Sci. Civil Engineering  
University of Alberta  
Raymond, AB, CA

**William Acri**  
Prof. Eng.  
BA Sci.  
Toronto, ON, CA

**Aleem Adil**  
IT Engineer  
M.B.A, B.E  
Riyadh, SA

**Pierre-Alain Adouane**  
Masters Mech. Eng.  
Tokyo, JP

**Amjed Afzal**  
Copenhagen, DK

**Edgar Agda**  
B.S. C.E., M. Eng. Sci.  
(Structural/Foundation)  
Sydney, AW

**David Aguirre**  
Architect  
B. Architecture  
USFQ, Ecuador  
Quito, Pichincha, EC

**Rodrigo Agüero**  
B.Sci. Electronics Eng.  
Buenos Aires, AR

**Mansoor Ahmad**  
Program Manager  
M.S. Engineering  
Ras Al Khaimah, UAE

**Moin Ahmed**  
London, GB

**Oulamine Ahmed**  
Architect  
Essaouira, MA

**Alvaro Aignerén**  
Mechanical Engineer  
Valencia, ES

**Hamzeh Al Garoud**  
Engineer  
Bach. Biomedical Engineer  
Amman, JO

**Kays Al Rayes**  
Bach. of Architecture  
Roger Williams Univ.  
Bristol, Rhode Island  
Kuwait, KW

**Salam Al-Bizri**  
BSCE  
Ph.D. Const. Management  
Reading, UK

**Pascal Alalinarde**  
Engineer  
B. Engineering  
Inst. National des Sciences  
Appliquées de Renne France  
Cholet, FR

**Jorge Albuerne**  
Architect  
Monterrey, MX

**Py Alexandre**  
Eng. in French Caterpillar  
Grenoble Metlab  
Engineering  
Grenoble, FR

**Syed Taha Ali**  
M. in Eng. Telecom.  
Bach. of Electrical Eng.  
Newcastle upon Tyne, GB

**Jacob Allderice**  
Architect  
B.A. Reed  
M. Arch. Dalhousie  
MUD University of Toronto  
Toronto, ON, CA

**Dardo Allen**  
Civil Engineer  
M. Sc., Buenos Aires Univ.  
Copenhagen, Glostrup, DK

**Paul Allen**  
B.Arch. Designer  
RIBA Pt. 3, UWCC, Cardiff  
Paris, Île De France, FR

**Harun Altay**  
M.S. in Computer Eng.  
B.S. in Computer Sci.  
Istanbul, TR

**Mario Alvarez**  
Meco, ES

**Edward Alves**  
A. Sci. Tech.  
Mech. Eng. Technologist  
White Rock, BC, CA

**Thushara Alwis**  
Bach. Civil Eng., NTU  
Singapore, SG

**AlHassan Aly**  
B.A. Sci. Electrical Eng.  
Univ. of Toronto  
Toronto, ON, CA

**Kyriakos Anatolitis**  
Mechanical Engineer  
M. Eng., Imperial College  
London, UK

**David Andresen**  
B. Sci. Civil Engineering  
UNSW Australia  
Cherrybrook, AU

**Toni Andriotis**  
Engineer  
B. Eng. Electrical  
Ottawa, ON, CA

**Ziolkowski Andrzej**  
Warsaw, AZ, PL

**Dietmar Ankermann**  
Dipl. Mech. Engineering  
Cologne, DW

**Elio Arcaro**  
Chemical Engineer  
Chem. Eng., Padova, Italy  
Ferrara, IT

**Alessandro Argentini**  
Bach. Aeronautical Eng.  
Pisa University  
Rijswijk, NL

**Frank Armbruster**  
Engineer  
Dipl. Eng. Feinwerktechnik  
Oöenburg, DE

**Timothy Arnold**  
Engineer  
B.S. Mechanical Eng.  
Copenhagen, DK

**John Arvidsson**  
Waste Water Engineer  
B. Eng., Chemical  
M. Eng., Environmental  
Stockholm, SE

**Gordon Ashby**  
B. Sci. Architecture  
Univ. of Toronto, Canada  
Bridgetown, BB

**Christoph Ax**  
Engineer  
Dipl. Engineering  
Darmstadt, DE

**Mochammad Baagil**  
Jakarta, AK, ID

**Hichem Bachir Bouiadja**  
Metallurgy Engineer  
Aigiers, AL

**André Bacon**  
Engineer  
B. Engineering  
Montréal, QC, CA

**Faris Bagaeen**  
CEO  
University of Dundee  
Aaman, JO

**Michal Bahno**  
Master Dipl. Engineering  
Trencin, SK

**Krystin Bajado**  
B.S. Electrical Eng.  
Manila, PH

**Douglas Baker-Patch**  
B. Mechanical Engineering  
Dundee, GB

**Jonas Bakken**  
Master of Science  
Oslo, NO

**Martijn Bakker**  
Software Architect  
Ir., Information. Tech.  
TU Eindhoven  
Eindhoven, NB

**Fahad Ballaho**  
Zamboanga, PH

**Carlos Basauri**  
B. Sci. Industrial Eng.  
Univ. of the Basque Country  
Bilbao, ES

**Humberto Bastidas-Ortiz**  
Aguascalientes, MX

**Rory Batchilder**  
B. Engineering  
Queen's Univ. Ontario  
Kingston, ON, CA

**Non-U.S. Architects and Engineers and A/E Professionals**

**Jeremy Beck**  
Victorian State Chairman  
CEC Australia  
B. Eng. Hons (Mech)  
Hadfield, AU

**William Belcher**  
B. Engineering  
Univ. of Melbourne  
Melbourne, Victoria, AU

**Wim Belt**  
Bach. Electrical Eng.  
Amsterdam, NL

**Mourad Bendjennet**  
Intern Architect  
B. Arch, M Sci. Project Mng.  
Montreal, QC, CA

**Andrew Bengston**  
Gateshead, GB

**Gary Benner**  
Consulting Engineer  
BA Science, Univ. of Toronto  
Toronto, ON, CA

**Wouter Berggren**  
Dipl. of Mech. Eng.  
Higher Technical School,  
Rotterdam, Netherlands  
Heiloo, NL

**Ray Bernard**  
P.Eng.  
B.Sc.Eng.  
Calgary, AB, CA

**Hamza Bhutta**  
Engineer  
B.S. Mechanical Eng.  
Multan, Punjab, PK

**Samuel Bigotte**  
Engineering Consultant  
Production Engineering (French Title)  
Issy Les Moulineaux, FR

**Syed Bilgrami**  
FIAP, Architect  
B. Arch  
Karachi, Sindh, PK

**Glen Bishop**  
Eng. Consultant  
B.S. Civil Eng., Michigan St.  
Bormes les Mimosas, FR

**Anders Björkman**  
Naval Arch. & Marine Eng.  
M.Sci.  
Beausoleil, FR

**Simon Black**  
B.E. (Hons), Univ. of Canterbury  
Wellington City, NY, NZ

**Bruce Blake**  
P. Eng., C.Eng., MRAeS.,  
BE.Aero., AME  
White Rock, BC, CA

**Roger Blake**  
Mech. Engineer NZCE  
Ngatea, North Island, NZ

**Bill Boggia**  
Struct. Eng. Consultant  
B. Mechanical Eng.  
Ballater, Aberdeenshire, UK

**James Boileau**  
Nanaimo, BC, CA

**Felix Boller**  
B. Sci. Civil Engineering  
MAS ETH  
Zürich, CH

**Bill Bolwell**  
Degree in Civil Eng.  
Whealers Hill, Victoria, AU

**Jim Bomford**  
P. Eng.  
B.A.Sc. Engineering, UBC  
Cowichan Bay, BC, CA

**Mike Bondi**  
P.Eng.  
B.A.Sci., Engineering  
Univ. of Waterloo  
Stratford, ON, CA

**Jaydis Borja Torres**  
Barranquilla, CO

**Jerome Bouchard**  
Engineer  
B.A. Engineering,  
UQAC, Canada  
Granby, QC, CA

**Damien Bouchet**  
Engineer  
Neuilly Sur Seine, FR

**Martin Bourgault**  
B. Arch., Univ. de Montréal  
Montréal, QC, CA

**Faical Bouzid**  
Montréal, QC, CA

**Ed Boyle**  
B. Sci. Architectural Tech.  
Glasgow, Scotland, GB

**Dylan Brady**  
Cork, IE

**Robert Brand**  
M. Civil Engineering  
Univ. of Nottingham, UK  
Crewe, Cheshire, GB

**Leendert Brouwer**  
B. Sci. Civil Engineering  
Eindhoven, NL

**Adrian Brunner**  
Dipl. Architecture, ETHZ  
Zurich, SH

**Carsten Bruns**  
Hannover, DE

**Pedro Buccellato**  
B. Arch, Prof. of Arch.  
SACAP  
Johannesburg, ZA

**Andy Buhler**  
Electromechanical Eng.  
B.S. Engineering  
Schaffhausen, CH

**Thies Burema**  
Elec. Eng., TU Eindhoven  
Eindhoven, NL

**David Burger**  
B. Engineering  
Sydney, AU

**Charles Burke**  
Prof. Civil Engineer  
B.S. Engineering, Cal St.  
Burbank, CA, LV

**James Burns**  
MCIBSE, C. Eng, B Sci. (Hons)  
B. Sci. Physics  
South Yorkshire, GB

**John Bursill**  
Lic. Aircraft Maint. Eng.  
Avionics  
Sydney, AU

**Werner Busenius**  
Director Global Sales  
M.S. Mechanical Eng.  
Munich, DE

**Arnaud Bérard**  
IT Engineer  
Paris, FR

**Nikolaus Böhm**  
Engineer  
Dipl. Eng. Univ.  
Bau, TU München  
Nördlingen, DE

**Martín Caballero Pose**  
Electrical Engineer  
B.A. Eng., Udelar Uruguay  
Montevideo, UY

**Patrick Calleja**  
Architect & Civil Engineer  
Bach. of Eng. and Arch.  
Gharghur, MT

**Carlogiovanni Carli**  
Mech. Eng. Degree  
Universita di Parma  
Parma, IT

**Lynn Caron**  
P. Eng.  
B.A. Sci. Mech. Eng.  
Univ. of Waterloo  
Brampton, ON, CA

**Xose Rodriguez**  
M.S. Civil Engineering  
Member of MICE  
Madrid, ES

**Sebastien Carton**  
Ph.D. Candidate  
Chem. Eng.  
B. Eng., Aeronautical  
M. Sci. A., Industrial  
Montreal, QC, CA

**Debora Cavalli**  
B. Architecture.  
Univ. Católica do Parana  
Curitiba, Parana, BR

**Lindsay Caywood**  
Ph.D. Engineering  
University of Utah  
Edmonton, AB, CA

**Robertas Cerskus**  
M. Architecture  
Vilnius Gediminas Tech. Univ.  
Kaunas, LT

**Mateusz Chachaj**  
M. Arch.  
Wroclaw, PL

**Marc Chaloupy**  
Engineer  
ESTACA  
Munich, DE

**Mark Chambers**  
Architect, MAAA, MAIBC,  
MRAIC, M. Arch.  
Calgary, AB, CA

**Huan Chan**  
B. Arch.  
Univ. of New South Wales  
Kuala Lumpur, MY

**Sarah Chaplin**  
Surbiton, GB

**Jason Cheshire**  
P. Eng  
B. Eng., Chemical Eng.  
Niagara Falls, ON, CA

**Gerard Chevrot**  
Engineer  
INSA Lyon  
Saint Sixt, FR

**Non-U.S. Architects and Engineers and A/E Professionals**

**Adrian Christen**  
Architect  
Bern Univ. of Applied Sci.  
School of Eng. and Arch.  
Burgdorf, Switzerland  
Thun, CH

**Christian Christensen**  
Kolding, DK

**Riccardo Cireddu**  
M. Sci. Arch. Const.  
Univ. of Cagliari, Italy  
Carbonia, IT

**Christophe Clement**  
INSA, Eng., Lyon, France  
Manosque, FR

**James Clinch**  
Ekero, SE

**André Coelho**  
Engineer  
Ph.D.  
Lisbon, Portugal, PT

**David Collins**  
Shrewsbury, GB

**David Conner**  
I. Engineer MIET  
Berlin, DE

**Jairo Contreras**  
B.S. Mech. Eng.  
Universidad Nacional  
Experimental del Tachira  
Ojeda, VE

**Nick Coombe**  
London, GB

**Sheridan Copley**  
Sheffield, GB

**Richard Cordingley**  
Graduate Engineer  
BEng (Hons)  
London, Hertfordshire, UK

**Andrea Croci**  
M. Sci. Engineering  
Politecnico di Milano  
Berlin, DE

**Filipe Cunha**  
Ponta Delgada, PT

**David Cyr**  
B. Electrical Eng.  
Montreal, QC, CA

**Mathieu Côté**  
Student  
Sherbrooke, QC, CA

**Enrico Miguel Dalistan**  
B.S. Civil Engineering  
Far Eastern University  
Manila, PH

**Aonghus Daly**  
Engineer  
Civil Engineering  
Cork, IE

**Lalit Das**  
B. Tech. Civil Engineering  
IIT Kanpur  
Delhi, IN

**Miguel David**  
Mechanical Engineer  
FH Dortmund  
Selm, DE

**Farrin de Fredrick**  
B. Civil Eng., UNSW  
Sydney, AU

**Erwin De Jong**  
M. Sci. Mech. & Struct. Eng.  
NL

**Jacob de Raadt**  
P. Eng.  
B. Sci., Univ. of Pretoria  
Langley, BC, CA

**Geoffrey Dean**  
B.E. J.P.  
B.E. Civil/Structural  
Univ. of West Australia  
Brisbane, AU

**Steve Dearlove**  
Architect  
B. Architecture  
Toronto, ON, CA

**Oliver Deeg**  
Dipl. Engineering  
Product Engineering  
Freiburg, DE

**Giuseppe Degradi**  
Carnate, IT

**Frank Deike**  
Dipl. Eng., Architect  
Überlingen, DE

**Manuel Delgado**  
Engineer  
BSME  
Madrid, ES

**Herwig Delvaux**  
M. Architecture  
Temse, BE

**Luc Demeyer**  
Architect  
University of Brussels  
Brussels, BE

**Jean Marc Demoulin**  
Architect  
DPLG, France  
Abbeville, FR

**Paul Denis**  
Engineer  
Dr. Mechs. and Mats.  
Loire, FR

**Guy Denutte**  
Engineer  
Engineering  
Univ. of Gent, Belgium  
Cali, CO

**Sebastiano DePani**  
Bach. of Engineering  
Montreal, QC, CA

**Eugenio di Bello**  
Architecture  
Univ. of Venice, Italy  
Udine, IT

**Francisco Di Biase**  
Engineer  
Rio De Janeiro, BR

**Alberto Di Segni**  
B. Mechanical Engineering  
Univ. La Sapienza Roma  
Roma, IT

**Victor Diaz**  
Engineer  
B.S. Civil Engineering  
Universidad Ricardo,  
Palma Peru  
Lima, PE

**Greg Dickson**  
Architect  
B. Arch. DU Geelong AU  
Melbourne, Victoria, AU

**Daniele Digregorio**  
Casale Monferrato, IT

**Roger Dixon**  
P.Eng., MPH, CIH (Ret.)  
B. Sci.Tech. (Elec. Eng.)  
Picton, ON, CA

**Carole Doohan**  
Sebastopol, CA, UM

**Stéphane Doutriaux**  
CEO  
B. Engineering, MBA  
Lausanne, CH

**Gabriel Doyle**  
Electrical Engineer  
Brasilia, DF, BR

**Michelangelo Dragone**  
Architect  
Alberobello, Bari, IT

**Scott Drake**  
B. Architecture  
University of Adelaide  
Bangkok, TH

**Edward Drennan**  
P. Eng.  
B.A.Sci., Univ. of Waterloo  
Oakville, ON, CA

**Andrew Drummond**  
B. Eng.  
Mechanical Eng.  
Uni of Glasgow  
Glasgow, Scotland, GB

**Jean-Louis Duhenois**  
Mech. Eng. (Materials) U.T.C.  
Strasbourg, Alsace, FR

**Steve Duncan**  
P. Eng.  
B. Sci. (Electrical)  
Univ. of Manitoba  
Kelowna, BC, CA

**John Dunham**  
MAIBC, MRAIC  
B.A., B. Ed., B. Arch.  
Salt Spring Island, BC, CA

**Vojtech Dvorak**  
Eng. Arch., CTU Prague  
Prague, CZ

**Tony Dyson**  
FI Chem. Eng.  
B. Eng., Chem.  
Univ. Adelaide  
Ballarat, Victoria, AU

**Guillaume Dérien**  
Engineering Staff  
Aerospace System  
Conception Engineer  
Cannes, FR

**Cameron Earl**  
Mechanical Engineer  
B. Engineering  
Melbourne, Victoria, AU

**Hans-Joachim Ebel**  
Dipl. Eng. Architecture  
Lueneburg, DE

**Peter Edmunds**  
B. Sci. Electronic Eng.  
DeMontfort Univ.  
London, UK

**Hernan Eguiguren**  
Architect  
B.A. Architecture  
Catholic U. Ecuador  
Quito, EC

**Ayman El-Fouly**  
Engineering Consultant  
B.Sci.  
Durham, NC, US

## Non-U.S. Architects and Engineers and A/E Professionals

**Nils El-Himoud**  
Dipl. Informatiker (FH)  
FH Konstanz  
Friedrichshafen, DE

**Said El-Majdalawi**  
Biomedical Engineer  
Medical Engineering,  
Surrey University  
Guildford, Surrey, UK

**Gavin Ellis**  
Ganges, BC, CA

**Ozkan Emlek**  
Dipl. Wirtsch. Eng.  
FH-Ansbach  
Böblingen, DE

**Gaillot Eric**  
DPLG Architecture  
Porto Vecchio, FR

**John C. Ermel**  
Dipl. Architecture ETH/SIA  
Dornach, CH

**Alexandros Ermogenous**  
B. Sci. Motorsport Eng.  
Brunel University, London  
London, GB

**Helmut Ernst**  
Mechanical Engineer  
Dipl. Eng. Univ. of Munich  
Oberursel, Hessen, DE

**Guillermo Escalante**  
Engineer  
Systems Engineer  
UVM Mexico  
Mexico City, MX

**Yusuf Essop**  
Mechanical Engineer  
B.S. Mech. Eng.  
Wits Univ. Johannesburg  
Johannesburg, ZA

**Jim Evans**  
Dr. C. Eng. Mech. Eng.  
B. Eng., M. Sci., Ph.D., Mech. Eng.  
London, UK

**Jean Evrard**  
M.S. Eng., Physics  
Brussels, BE

**Hussein Faizi**  
Engineer  
BCE, Georgia Inst. of Tech.  
London, UK

**Jon Falzon**  
Prof. Mechanical Eng.  
B. Mech. Eng.  
Adelaide, SA, AU

**Qazi Faraz**  
M.S. Aerospace Eng.  
Univ. of Illinois  
Champaign, IL, US

**Nicolas Farges**  
Engineer  
Eng. Dipl. Level 2. French CESI.  
London, UK

**Tryfon Farmakakis**  
Engineer  
M. Sci. Elec. & Comp. Eng.  
NTUA GR  
Athens, Attiki, GR

**Istvan Fazekas**  
Engineer  
B.A. Engineering  
TUB Budapest  
Budapest, HU

**Hans Peter Feddersen**  
Agricultural Engineer  
Flensburg, DE

**Robert Feely**  
Bromma, SE

**Richard Fells**  
Dipl. Architecture  
Birmingham Sch. of Arch.  
Plymouth, GB

**João Ferreira**  
Engineer  
Lisbon, PT

**Sandor Finta**  
Architect  
M. Arch. BME Budapest  
Budapest, Hungary

**Konrad Fischer**  
Dipl. Eng. Architekt BYAK  
Dipl. Eng. Univ. TU München  
Hochstadt, DE

**George Forsyth**  
B. Sci. Mech. Eng.  
London, UK

**Jean-Etienne Fraiture**  
Engineer IGLg  
Industrial Engineer  
IG Liège, Belgium  
Jalhay, BE

**Ruy Franco**  
Architect  
Santos, SP, BR

**Johan Frederiksen**  
Engineer  
Engineering, Aalborg Univ.  
Århus, DK

**Bernard Fredette**  
Architect  
B.A. Arch. Univ. of Montreal  
Montreal, QC, CA

**Stefan Frischauf**  
Architect  
Dipl. Ing. FH  
Duesseldorf, Germany  
Kabul, AF

**Andreas Frohlich**  
Syst. Eng., Computer Sci.  
B. Sci.  
Duisburg, DE

**Henk Frouws**  
Bach. of Engineering  
Higher Technical College  
Nijmegen, NL

**Markus Frutig**  
Dipl. Eng., Architecture  
TU Stuttgart  
Zurich, CH

**Randall Fry**  
Cert. Eng. Technologist C.E.T.  
Elec. Eng. Tech. SIAST  
Pincher Creek, AB, CA

**Roberto Furlan**  
Civil Engineering  
Univ. of Padova, Italy  
Pieve Di Sacco, IT

**Rob Furmanic**  
B. Sci. Mech. Eng.  
Univ. of Saskatchewan  
Saskatoon, SK, CA

**Pierre Gallant**  
Grande-Digue, NB, CA

**Nick Gallis**  
Master in Architecture  
Antwerp, BE

**Angel Garcia DE Vinuesa**  
Architect, M.Litt. MDI  
Arch. and Town Planning. ETSAN  
Madrid, ES

**Silvia Garcia**  
MX

**Freddy Gardiol**  
Engineer, Sc.D., Prof. (Ret.)  
Physicist Engineer  
Pully, Vaud, CH

**Marek Gasiorek**  
Architect  
Wolka Kozodawska, PL

**Gerd Gaudray**  
Engineer  
Dipl. Engineering  
Langenau, DE

**Guy Gauthier**  
Engineer  
B. Eng., M. Applied Sci.  
Ecole Polytechnique  
Lachine, QC, CA

**Alexandru Gavozdea**  
B. Sci. Architecture  
The Ion Mincu University of  
Architecture and Urbanism  
Bucharest, Romania  
Sibiu, RO

**Bill Genitsaris**  
Consulting Struc. Eng. & Builder  
BA Eng., Uni. of Melbourne  
Melbourne, AU

**Sean George**  
Kingston, ON, CA

**Tiziana Geraci**  
Architect, Politecnico di Torino  
Torino, IT

**Francesca Gervasutti**  
Degree in Arch. Design  
Politecnico of Milan  
Milan, IT

**Iman Ghaly**  
Architect  
B. Sci. Architecture  
Cairo, Zamalek, EG

**Martin Giuffrida-Ruggeri**  
P. Engineering  
BSME, Univ. Wisconsin  
Blind Bay, BC, CA

**Richard Golay**  
Engineer  
M. Sci.  
Pully, CG

**Peter Goldschmidt**  
Nordhorn, DE

**Marcos Gonzalez**  
M. Arch.  
M. Sci. Arch., U of C  
Colima, MX

**Clemens Goselink**  
B. of Built Environment  
Hogeschool Enschede, NL  
Deventer, NL

**Carl Goss**  
B. Sci. (Hons) Architecture,  
M. Sci., MCI0B, MCIAT, MAPM  
Leeds, W Yorks, UK



## Non-U.S. Architects and Engineers and A/E Professionals

**Rossella Gotti**  
Architect  
London, UK

**Piet Gouws**  
Pr. Arch., MI KZ-NIA  
Durban, ZA

**Manogran Govender**  
Prof. Eng. Civil Eng. Consultant  
Prof. Eng., B. Eng., UDW  
MBL, UNISA  
Durban, ZA

**Luigi Grandi**  
Dr. Architecture  
Politecnico di Milano  
Brescia, IT

**Christopher Granger**  
Architect  
B. Sci. (Hons), Dip. Arch  
Bolton, UK

**John Gray**  
BFA, B. Architecture  
Melbourne, AU

**Marc Graziani**  
P. Eng.  
B. Eng. Aerospace  
Carleton University  
Guelph, ON, CA

**Samuel Green**  
Bristol, GB

**Christophe Guillouet**  
Paris, FR

**Guven Guler**  
Engineering Consultant  
B. Sci., Mining Engineering  
Ankara, TR

**Peter Gyurik**  
B. Mechanical Engineering  
Vaxjö, Småland, SE

**Tahar Haddad**  
Ph.D. Sci. and Tech. Info.  
M. Sci. A., Elec. Eng.  
B. Eng. Elec. Eng.  
Ottawa, ON, CA

**Adrian Hallam**  
M.I.A.  
B. Architecture  
Durban, ZA

**David Hallier**  
Engineer  
INSA Lyon  
Saint Lager Bressac, FR

**Stephen Hanneman**  
B. Sci. Architecture  
Univ. of Toronto, Canada  
Gibsons, BC, CA

**Rasmus Hansen**  
Refinery, Team Leader  
Marine Engineer  
Aarhus, DK

**David Haraldseid**  
M.S. Engineering  
Aksdal, Rogaland, NO

**Omar Harb**  
Architect  
M. Architecture  
Holy Spirit Univ. of Kaslik,  
Jounieh, Lebanon  
Beirut, LB

**Reinhold Harder**  
Dipl. Engineering  
Großwoltersdorf, DE

**Neil Harmon**  
B. Engineering (Hons.)  
Electrical & Electronic Eng.  
Leeds, GB

**Gerd Harms**  
Dr. Engineering  
Burgdorf, DE

**Muhammad Haseeb**  
B. Eng., Computer Sci.  
Visvesvaraya Tech. Univ.  
Karnataka, India  
Tirur, IN

**Chris Haughton**  
Registered Architect  
B. Arch., Univ. of Liverpool UK  
Sydney, AU

**Chris Hazzard**  
Bach. of Civil Engineering  
Kelmscott, AU

**Andreas Hedqvist**  
Den Haag, NL

**Frank Hellin**  
Electro-Mechanical Eng.  
M.Eng., ElectroMechanics  
KaHo Gent, Heule, West.  
Flanders, BE

**Kevin Henriksen**  
AEC Software Developer  
B.S. Electrical Eng.  
Univ. of Iowa  
Brisbane, IA, AU

**Anton Herciu-Ivascu**  
Cambridge, ON, CA

**Peter Hermans**  
B. Architecture  
Auckland University, NZ  
Bangkok, TH

**Yosvel Hernandez**  
Suarez  
Engineer  
B. Engineering  
ISPAJE, Havana, Cuba  
Montego Bay, JM

**Greg Hession**  
BA Sc. Civil Engineering  
Univ. Ottawa, Ontario  
Ottawa, ON, CA

**Michael Him**  
Architect  
Georgetown, MY

**James Hoadley**  
B. Arch. Auckland  
Auckland, NZ

**James Hodgskiss**  
B.Eng (Hons)  
Electronics & Communications  
University of Liverpool  
Holmfirth, GB

**Alwin Hoff**  
Dipl. Eng. FH Architect  
Mainz, DE

**Norman Hoff**  
Tabanan, ID

**Daniel Hofnung**  
Building Industry Eng.  
Ivry Sur Seine, FR

**Raymond Hogue**  
P. Engineering  
BSC University of Toronto  
Peterborough, ON, CA

**Eivind Holden**  
Architect  
Brønnøysund, NO

**Steen Holmgren**  
Architectural Consultant  
MAA Royal Acad. of Fine Arts  
Copenhagen, DK

**Terje Holthe**  
Civil Engineer  
B. Science, Civil Eng.  
Drammen, NO

**Benjamin Hornblow**  
Senior Engineer  
Mech. Eng., B.A.Sc., UBC  
Copenhagen, DK

**Christian Hostettler**  
Sr. Electrical Automation Eng.  
Univ. of Applied Sci., Rapperswil  
Diamond Creek, AU

**Cyrille Houdebine**  
Structural Engineer  
Master  
Lyon, FR

**Tahar Houhou**  
Engineer  
Rhone, FR

**Jean Hudon**  
B. Engineering  
Montréal, QC, CA

**Nils Hulgaard**  
P.E.  
M. Sci. Civil Engineering  
Tech. Univ. of Denmark,  
Copenhagen, Denmark  
Eggerup, DK

**Jan Hundseid**  
Engineer  
M.S. Mechanical Eng.  
Stavanger, NO

**Ove Hundseid**  
Principal Engineer  
M.S. Mech. Engineering  
Sandnes, NO

**Craig Hutchinson**  
M. Eng. Dist.  
Canterbury Univ., NZ  
Christchurch, NZ

**Pierre Huyard**  
Architect  
Ho Chi Minh Ville, VN

**Jorge Huyer**  
Engineering Consultant  
Structural Doctor  
Toledo, Paraná, BR

**Stefan Iacob**  
Vaslui, RO

**Dmitry Ignatyev**  
Nizhny Novgorod, RU

**Klaus Illum**  
Dr.  
M. Sci. Civil Engineering  
Fur, DH

**David Incertis Jarillo**  
Valencia, ES

**Buero Andreas**  
Gross GmbH  
Engineer  
Eng. FHS Wedel, Germany  
Morgarten, CH

**Graham Inman**  
Civil & Structural Eng.  
London, UK



## Non-U.S. Architects and Engineers and A/E Professionals

**Claudio Irizarry**  
Chattilo, PR

**Md Islam**  
M. Sci.  
Edmonton, AB, CA

**Bahiah Ismail**  
Subang Jaya, MY

**Hadi Izadi**  
Ph.D., Student  
M.A. Science  
B.A. Sci. Electrical Eng.  
Vancouver, BC, CA

**Steve Jackson**  
B.A. Sci.  
Brantford, ON, CA

**Dennis Jacobs**  
Bach. Steel Engineering  
Hoger Tech. Inst.  
Driel, NL

**Jackie Jankowski**  
EIT Electrical  
B.A. Sci. Univ. of Ottawa  
Reno, NV, US

**Lech Jaworski**  
Engineering Consultant  
Master Of Science Food  
Engineering, SGGW  
Vancouver, BC, CA

**Christian Jensen**  
Engineer  
B.A., Electronics, DTU  
Copenhagen, DK

**Andrew Jensson**  
P. Electrical Engineering  
Kamloops, BC, CA

**Peter Jessen**  
Engineer  
B.A., Engineering  
Ballerup, DK

**Robert Jessurun-Visser**  
Dr. Ing., M.Sc.  
Dr. Ing. Aeronautical Sciences,  
T.U. Delft, The Netherlands  
Jardinga, Friesland, NL

**Viktor Jindra**  
Bc., B.A., Architecture  
VUT Brno  
Brno, CZ

**Robert Jirava**  
P. Eng., C. Eng., M. Struct. E  
Struct. Eng, B.A. Sci.  
Surrey, BC, CA

**Arild Eugen Johansen**  
Civil Architect  
MNAL/Ind. Designer MNID  
Diploma in Architecture  
Bekkestua, NO

**Nils Johan Johansson**  
M. Sci. Engineering Physics  
Karlskrona, Blekinge, SE

**Christoffer Johnson**  
Surte, SE

**Peter Johnstone**  
Engineer  
B. Civil Eng., Newcastle  
Brisbane, AU

**Howard Johnston**  
Architect, BA(AS) Dip. Arch.  
BA Architecture  
PG Diploma Architecture  
Wirral, GB

**Matthew Johnston**  
Advanced Diploma Mech. Eng.  
Hastings, NZ

**Everhardus 'Hardy'  
Jonck**  
Bach. of Elec. Engineering  
Univ. of Pretoria, South Africa  
Cape Town, ZA

**Byron "Doug" Jordan**  
M.S. Mechanical Eng.  
University of Houston  
Riyadh, SA

**Benoit Josz**  
Industrial Engineer  
Brussels, Belgium

**Robert Jung**  
Engineer  
BSME  
Lenzburg, AG, CH

**Boris Jäggi**  
Dipl. Ing. ETH  
Master of Science  
Zürich, CH

**Matthias Kahle**  
Dipl. Ing. (FH)  
Mechanical Eng., THM  
Gießen, DE

**Nima Kalbasi**  
Mechanical Engineer  
B.A of Applied Sci. & Eng.  
Toronto, ON, CA

**Peter Kalcev**  
Bach. Aeronautical Eng.  
Bankstown NSW, AU

**Peter Kalcev**  
Bach. Aeronautical Eng.  
Bankstown NSW, AU

**Razali Kamisan**  
B. Arch., Univ. of Miami  
Tronoh, Perak, MY

**Merlijn Kamps**  
B. Sci.  
Mechanical Engineer  
University of Suriname  
Rotterdam, NL

**Vaughan Keal**  
Beccles, GB

**Kieran Kelly**  
B. Engineering  
Electronic Eng.  
G. Dipl. Comp. Eng.  
Tralee, IE

**Thomas Kelly**  
Dipl. Ing. (FH)  
Communications Eng.  
Karlsruhe, DE

**Martin Kendall**  
B. Eng. (Hons)  
Brisbane, AU

**Trevor Kent**  
New Ross, IE

**Reinhard Kern**  
Dipl. Engineering  
Forchheim, DE

**Abu Khan**  
IT Consultant  
Electronics &  
Communication Eng.  
Delhi, IN

**Faseel Khan**  
P.E.  
M. Sci. Civil Engineering  
Univ. of Eng. and Tech.  
Lahore, Pakistan  
Regina, SK, CA

**Philip Kienholz**  
NWTAA, PMP, Architect  
B. Architecture  
Hay River, NT, CA

**John Kiernan**  
B. Sci. Structural Eng.  
Dublin Institute of  
Technology, Ireland  
Longford, IE

**Ir Chan Kin Pooi**  
MIEM, P. Eng, MCIHT,  
B. Sci. (Hons) Civil Eng.  
Kuala Lumpur, MY

**Adam Kingsnorth**  
Electronic Engineer  
B.E.(Hons)  
Electronics and Computer  
Westcliff-on-Sea, UK

**Márton Király**  
Budapest, HU

**Gerhard Kleinke**  
Bach. Engineering  
Univ. of Technology  
Braunschweig, Germany  
Bremen, DE

**Stephen Knowles**  
M. Engineering  
Yarker, ON, CA

**Gert Koopman**  
Engineer  
M.Sc., PDEng  
Amstelveen, NL

**Johan Koopman**  
M. Sci., M.E.  
Delft Univ. of Technology  
Heiloo, NL

**Konsta Koppinen**  
Lecturer  
Dr. Technology  
Tampere, FI

**Roman Korol**  
Engineer  
B. Eng. (Electrical)  
Montreal, QC, CA

**Luke Kraynyk**  
Winnipeg, MB, CA

**Christoph Kremin**  
Dr. Eng., Mech. Engineering  
TU-Ilmenau  
Hamburg, DE

**Steve Kretschmann**  
B.Sci. Engineering (Computer)  
Univ. Manitoba, MB, Canada  
Winnipeg, MB, CA

**John Kroll**  
Architect  
Arch. School Royal  
Academy of Fine Art  
Kongens Lyngby, DK

**Joel Kuhn**  
B.S. Mechanical Eng.  
Toronto, ON, CA

**Reinhard Kuhn**  
Engineer  
Dipl. Engineering  
B.A. Mosbach Germany  
Ludwigsburg, DE

## Non-U.S. Architects and Engineers and A/E Professionals

### Gerard Kupfer

Architect  
Dipl. Building Engineer  
Techn. Univ., Delft  
Den Haag, NL

### Sukru Kurkcuglu

Civil Engineer  
M. Sc. Tech. Univ., Istanbul  
Istanbul, TR

### Lukas Kurmann

Dipl. El. Eng. FH, M.Sci. E.E.  
M. Sci. Eng., Syracuse Univ.  
Franken, FR

### Heikki Kurttila

Safety Engineer  
Doctor of Technology  
Espoo, FI

### Florian Kurz

Architect  
Dipl. Ing. (FH)  
GSO-Nuremberg  
Nürnberg, Bavaria, DE

### Susumu Kuwano

Architect  
Tokyo, JP

### Ioannis Kyriakou

M. Engineering  
Thrace, GR

### Kris La Rose

P. Engineering  
Bach of Mechanical Eng.  
Vancouver, BC, CA

### Silvan Laan

Architectural Designer  
B. Design, Arch. Design  
Gerrit Rietveld Acad.  
Amsterdam, NL

### Jorge Labrador

Architecture, Universidad  
Politécnica de Valencia  
Valencia, ES

### Alex Laflamme

Bach. of Electrical Eng.  
Sherbrooke Univ., Quebec, CA  
Gatineau, QC, CA

### Robert Lallier

Engineer  
Industrial Eng., Building Mgmt.  
Montreal, QC, CA

### John Lambert

B. Eng., Univ. of Melbourne  
Wandana Heights, AU

### John Larsen

M. Sci. Elec. Eng.  
Technical Univ. of Denmark  
Fejoe, DK

### Knud Larsen

Professor Emeritus, Architect  
M. Architecture, Copenhagen  
Oslo, NO

### Jason Launchbury

B. Eng. (hons) Engineer  
B. Eng. (hons) Digital Sys.  
Kaipoi, NZ

### Francisco Lebre

Structural Engineer  
IST Lisbon Portugal  
Lisbon, PT

### Christophe Leclerc

Engineer  
Saint Cyr, France  
Bruxelles, BE

### Stephen Lee

Architectural Designer  
M. Arch., Univ. of Virginia  
Paris, FR

### David Leifer

Registered Architect  
B. Sci., B. Arch., M. Ed., Ph.D.  
Sydney, AU

### Peter Liebold

Dipl. Engineering  
Greiz, DE

### Vincent Liegey

Mechanical Engineer  
Masters Degree  
Clermont Ferrand, FR

### Vilis Lietuvietis

BES, Johns Hopkins Univ.  
MSEE UCSB  
Ilurma, EE

### Kenneth Lim

Chemical Engineering  
Selangor, MY

### Yan (Frank) Li

Sydney, AU

### David Llewelyn

Fellow of the Institution  
of Mechanical Engineers  
Mechanical Eng., Bristol UK  
Oslo, NO

### Fiaz Lodi

Mechanical Engineer  
Bach. of Mechanical Eng.  
Dubai, AE

### Gloria Lo

M. Arch. Hons  
MA ARB RIBA RIAS  
Architecture  
Edinburgh, GB

### Lise Longo

Architect  
Universidade Federal  
de Santa Catarina  
Santa Catarina, BR

### Victor Lopez-Rioboo

Gil  
Sustainable Architect  
B.A. Architecture  
A Coruña, ES

### Otto Lund

Engineer IT  
Trondheim, NO

### Eric Luypaert

Engineer  
B.A., Engineering, E.T.S.  
Montreal, QC, CA

### Svein Lysø

Bergen, NO

### Andreas Lössl

Ph. D. Agricultural Eng.  
Merching, DE

### Peter Maas

B.S. General Eng. Sci.  
Karlsruhe, DE

### Ian Maclean

Professional Engineer  
B.S. Mechanical Eng.  
Winnipeg, MB, CA

### Kasper Madsen

Engineer  
Helsingør, DK

### Derek Mah

B. Architecture  
Univ. of New South Wales  
Sydney, AU

### Frank Maly

B.E. Electrical Eng.  
Univ. of New South Wales  
Canyonleigh, AU

### Eric Mandemaker

Engineering Consultant  
B.Tech. Hon. Aero Eng.  
B.Tech. Loughborough Univ. UK  
Lier, Antwerp, BE

### Zain Mankani

B. Arch., MS  
B. Arch. IVSAA Karachi, PK  
M.S. Const. Mngt. HTW, Berlin  
Karachi, Sindh, PK

### Taymoor Marar

B.S. Electrical Engineering  
Univ. of Colorado, Boulder  
Lyon, FR

### Taymoor Marar

B.S. Electrical Engineering  
Univ. of Colorado, Boulder  
Lyon, FR

### Pierre Marchand

Mechanical Engineer  
Master Of Applied Science  
Montreal, QC, CA

### Martin Marchart

Engineer  
Mech. & Electronics Eng.  
Vienna, AT

### François Marginean

Architectural Consultant  
Collège du Vieux,  
Montreal, Canada  
Montreal, CA

### Minor Martin

Architect  
Anarquia Architecture  
Costa Rica  
San Jose, CR

### Jan Marton

Engineer, Arch.  
FA ČVUT Prague  
Liberec, CZ

### Bruno & Savino

Masciandaro  
Torino, IT

### Paul Mason

Civil/Structural Engineer  
Bachelor of Engineering  
Melbourne, Vic, AU

### Zahir Masters

Architect  
B. Architecture  
Pune, IN

### Wesley Matthew

Engineer  
B.E. Computer Science  
Anna University  
Trivandrum, IN

### Darragh McConville

Software Engineer  
B. Eng., Software Eng., UUU  
Belfast, N. IE

### Michael McGill

C. Engineering MICE  
B. Sci. (Hons)  
Liverpool, UK

### Geeoffrey McKee

Engineering Consultant  
B.E. (Chemical),  
Univ. Canterbury NZ  
Sydney, AU

## Non-U.S. Architects and Engineers and A/E Professionals

**Geoff McMahon**  
B. E. Eng., MIE Australia  
Bach. Degree of Electrical Eng.  
Melbourne, AU

**Alberto Medici**  
Electronic Engineer  
Padova, IT

**Mario Melhem**  
Eng. Geologist/Petrologist  
Univ. de Sao Paulo (Master)  
Melbourne, AU

**Judith Meléndrez Bayardo**  
Arch. Degree, La Universidad  
National Autonoma de Mexico  
Mexico City, MX

**Alexander Merker**  
Engineer  
Dipl. Eng., Information Tech.  
Hannover, DE

**Joshua Miccoli**  
Dipl. Eng. Architect  
Neuthard, DE

**Alan Middleditch**  
Professor  
B. Sci., M. Sci., M.S.,  
Ph.D. Engineering  
Uxbridge, GB

**Kayser Milleliri**  
Architecture D.P.L.G.  
Sartene, FX

**Martina Minardi**  
Turin, IT

**Ali Mohamad**  
Bach. of Aerospace Eng.  
Royal Melbourne Inst. of Tech.  
Melbourne, AU

**Mohamed Mohideen**  
Planning Manager  
B.E. Civil Engineering  
Dammam, SA

**Emilio Molinero**  
Master of Architecture  
Polytechnic Univ. of Catalonia  
Barcelona, ES

**Giovanni Monaco**  
Master of Architecture,  
University of Palermo, Italy  
Salem, IT

**John Moon**  
P. Eng.  
BSE (EE), BSE (Eng. Physics),  
Univ. of Michigan  
Skead, ON, CA

**David Moore**  
Principal Architect, ARAIA  
B. Arch Melb., M.Arch Melb.  
Melbourne, Vic, AU

**Arturo Moreno**  
B. Arch SCI-Arc  
Suita-shi, Osaka, Japan

**Pablo Morera Ballester**  
Architect  
Univ. Politecnica de Valencia  
Escuela Tecnica Superior de  
Arquitectura, Valencia Spain  
Valencia, ES

**Sébastien Morfouace**  
Architecte d.e.h.m.o.n.p.  
Plestin-les-grèves, FR

**Steven Morris**  
B.A. Engineering  
Cardiff, Wales, GB

**Renato Moscardini**  
Boncourt, CH

**Dr. Robert Mote**  
Ph.D., Structural Eng.  
B. Eng. (Hons)  
Calgary, AB, CA

**Sergio Mualim Celume**  
Atarfe, ES

**Johannes Mueller**  
Dipl. Engineering  
RWTH Aachen  
Olching, DE

**Urs Mueller**  
Ph.D. Student  
M.S. Electrical Eng.  
Eidgenössisch Technische  
Hochschule Zürich  
Neuchâtel, CH

**Kamel Mukharesh**  
Beirut, LB

**Hamid Mumin**  
Ph.D. Univ. of W. Ontario  
Brandon, MB, CA

**Mujeeb Musavi**  
B.E. Civil  
Toronto, ON, CA

**Paola Mussini**  
Architect  
B. Architecture  
Restoration & Urban Planning  
Politecnico di Milan Italy  
Novara, IT

**Juan Ignacio Muñoz**  
Mechanical Engineer  
E.U.I.T.I Bilbao  
Bilbao, ES

**Christian Münkkel**  
B. Sci.  
Mech. & Process Eng.  
Tech. Univ. of Darmstadt  
Ober-Ramstadt, DE

**Regine Naeckel**  
Graduate Engineer for  
Landscape & Environmental  
Berlin, DE

**Enrico Napolitano**  
Civil Engineer  
Univ. Central de Venezuela  
London, GB

**Safder Nazir**  
B. Eng., M. Sci.  
M. Sci. Ind. Eng.  
Manchester, UK

**Dave Nebezpecny**  
Eng. Arch. STU Bratislava  
Bratislava, SK

**Sam Nejad**  
Engineering Consultant  
B. Sci. Engineering  
Geraldton, AU

**Ivan Nemec**  
Ass. Prof., M. Sci., Ph.D.  
Ass. Prof. of Eng., Mech. T.U.  
Brno, CZ

**David Nicolea**  
Novo Hamburgo, BR

**Edwin Nieuwenhuys**  
M. Sci. Elec. Eng.  
University of Technology,  
Eindhoven, Netherlands  
Oudekerk aan de Amstel, NL

**Luutzen Nijdam**  
Engineering Consultant  
B.A., Irrigation & Civil Eng.  
Wageningen, NL

**Eugene Nikitin**  
Engineering Consultant  
Masters in CE, VSACU  
Voronezh, RU

**Nikolaos Nikolaidis**  
Engineer  
B. Eng., M.Eng.  
Thessaloniki, GR

**Gary R Nolen**  
Fatima, PT

**Jim Norie**  
P.Eng., B.A.Sc. (Civil)  
U.B.C., MEdes. (ES).  
Victoria, BC, CA

**Terry Norman**  
C Eng., B. Sci. Eng.,  
M.I.M.C. Eng. Consultant  
B. Sci. Mechanical,  
University of London  
Wilmslow, GB

**Anthony Novak**  
Managing Director  
B.S.E.E.  
Bangkok, TH

**Sam O'Donnell**  
Student  
Bach. of Building Sci.  
Wellington, NZ

**Karl Josef Oberländer**  
Port Grimaud, FR

**Vida Ogorelec**  
B. Arch. MFA  
B.A Eng., Univ. of Ljubljana  
Dorking, UK

**Janine O'Keefe**  
B. Sci. Engineering  
RMIT Univ., Melbourne,  
AU

**Emmanuel Olatoye**  
Architect, Member Moscow  
Union of Architects  
M.Sci. Architecture  
Toronto, ON, CA

**Marian Ontkoc**  
Humenne, SK

**Jim Opfer**  
Architect  
Dipl. Arch., RIBA,  
RIAS  
Glasgow, Scotland, UK

**Patricia Ormsby**  
B.S. Chem.E.  
Univ. of Colorado  
JP

**Jorge Ortiz-Colom**  
Architect  
M. Arch. Univ. of Puerto Rico  
Guayama, PR, US

**Shashank Padmanabhan**  
Software Programmer  
B.E., Telecoms.  
Bangalore, IN

**Filippo Palazzolo**  
Architecture,  
Univ. of Palermo, Italy  
Cinisi, Palermo, IT

## Non-U.S. Architects and Engineers and A/E Professionals

**Ondrej Papes**  
Mechanical Engineer  
Dipl. Masch. Eng. ETH  
Bäch, CH

**Julio Pardilla**  
Architect  
Polytechnic Univ.  
of Barcelona  
Barcelona, ES

**Yves Parent**  
P. Eng.  
B.S. Elec. Engineering  
Univ. of New Brunswick, CA  
Saint John, NB, CA

**Cameron Parkes**  
B. Sci. Chemical Eng.  
Univ. of Calgary, Canada,  
West Vancouver, BC, CA

**Adam Parrott**  
B.S. Chemical Engineering  
Montreal, QC, CA

**Frank Pasquill**  
Prof. Engineer (Ret.)  
B. Sci. Mech. Eng.  
Univ. of Manitoba  
Toronto, ON, CA

**Howard Pasternack**  
B.A.Sci., P.Eng.  
B.A.Sci. Civil Eng.  
Univ. of Toronto  
Toronto, ON, CA

**Jan-Bernd Pauli**  
Engineer  
Dipl. Eng. (FH)  
University Werl,  
N. Rhine Westphalia, DE

**Thomas Pedersen**  
M. Sci. Civil Engineering  
Tech. Univ. of Denmark  
Lyngby, DK

**Sarit Peer**  
B.E., Engineer  
Mumbai, IN

**Karl-Heinz Peil**  
Eng. in Building Tech.  
Dipl. Eng. (Germany)  
Frankfurt Am Main, DE

**Stephen Peppin**  
Leighton Buzzard, GB

**Bruno Peretti**  
Fartura, BR

**Carlos Gustavo Perez**  
Master Engineer  
Control and Automation  
Pontifical Univ. of Peru  
Lima, PE

**Sebastien Perrault**  
Civil Engineer, ESTP, France  
Paris, FR

**David Pesten**  
B.E. M.B.A.  
UTS, Sydney, Mechanical  
St. Petersburg, RU

**Jiri Peterka**  
Master of Engineering  
Informatics and Automation,  
Faculty of Mech. Engineering  
of the Tech. Univ., Brno, CZ  
Bzenec, CZ

**Jean-Claude Pierrard**  
Architecte  
ISA St-Luc Bruxelles  
Robelmont/Meix-Dvt-Virton  
Luxembourg, BE

**Antanas Pikalovas**  
Bach. of Arch.,  
Vilnius Gediminas Tech. Univ.  
Vilnius, Lithuania  
Vilnius, LT

**Thomas Pittracher**  
Dipl. Arch ETH/SIA  
Stuttgart, DE

**Alain Plasschaert**  
Engineer  
M. Sci., Mech. Eng. TU Delft  
Den Bosch, NL

**Doug Plumb**  
Toronto, ON, CA

**Leonard Pomodoro**  
Engineer  
M. Eng., EPFL Lausanne  
Lausanne, CH

**Andre Ponzo**  
Engineer  
Elec. Power Engineering  
Geneva, CH

**Claudiu Pop**  
Site Manager  
M. Sci. Industrial Eng.  
Malmö, SE

**Helena Potgieter**  
B.Arch., Prof. Arch., M.Arch.  
University of Pretoria  
Pretoria, ZA

**René Poulsen**  
Scientist  
B. Sci. Chemical Eng.  
Lyngby, DK

**Thomas Poulsen**  
M.Sc. Comp. Sci. Eng.  
B. Sci. Energy Eng.  
M.Sci. Engineering  
Brevst, DK

**Victor Prodanovic**  
Master of Elec. Eng.  
School of Elec. Eng.  
University of Belgrade,  
SFR of Yugoslavia  
Lane Cove, AU

**Wadim Puhl**  
B. Engineering,  
Univ. of Applied Science  
(Fachhochschule), Germany  
Ingolstadt, DE

**Gemma Pérez Guerrero**  
Telecom Engineer  
Ponferrada, León, ES

**David Quinn**  
M. Arch., Intern Architect  
Halifax, NS, CA

**Maxine Raabe**  
BA Hons., Dip Arch.  
BA Hons. South Bank,  
Dip Arch. Canterbury  
Whitstable, UK

**Danny Rabinowitz**  
Montreal, QC, CA

**Allan Racasa**  
Civil Engineer  
B.S. Civil Engineering  
DLSU Manila  
Quezon City, MM, PH

**Diego Rafael**  
Caracas, DC, VE

**Aravind Ramasamy**  
Bach. of Engineering  
Sydney, AU

**Damien Rambaud**  
Electronic Engineer  
ENSEEHT  
Toulouse, FR

**Slava Rapoport**  
M. Engineering  
M. Eng., Power Engineering  
Gta, ON, CA

**Frank Rasmussen**  
Mech. Engineer  
B. Sci.  
Silkeborg, DK

**Ulrich Reiter**  
Master of Theatre Eng.  
Baden-Württemberg  
Cooperative State Univ.  
Berlin, DE

**Ali Rguichi**  
Engineer  
Dipl. Engineering  
Munich, DE

**Rodrigo Riadi**  
Mechanical Engineer  
Univ. Sao Paulo  
Westminster, CO, US

**Cliff Richard**  
P. Eng  
Bach. of Mech. Eng.  
Univ. of Alberta, Canada  
Edmonton, AB, CA

**Simon Richards**  
Engineering Graduate  
B. Eng. (hons) Mech. Eng.  
Stevenage, UK

**Pierre Richelle**  
Consulting Engineer  
M. Sci. Civil Engineering  
Brussels, BE

**Arnaud Riou**  
Engineer  
B.A. Mechanical Eng.  
Gaillac D'Aveyron, FR

**Alejandro Ripstein**  
Engineer  
BA Engineering ITESM  
Monterrey, Mexico  
Mexico City, MX

**Puput Risanto**  
Engineer  
B.Sci. Engineering  
ITB Indonesia  
Yogyakarta, ID

**Adrian Rivera**  
B. Arch., Virginia Tech  
Marbella, ES

**Richard Robbins**  
Drilling Fluids Engineer  
B. Eng. Geol. & Geotechnics  
Coventry, UK

**David Roberts**  
Amsterdam, NL

**Hector Rodriguez**  
Mexico, DF, MX

**Jason Rollin**  
B. Eng. Civil  
London, UK

**Mathias Rollot**  
France, FR

**Willem Roos**  
Eindhoven, NL

**Sven Rothfuss**  
Dipl. Engineering  
M. Sci. Structural Eng.  
West Sacramento, CA, US

**Non-U.S. Architects and Engineers and A/E Professionals****Joe Rowling**

Architectural Staff  
London, UK

**Jérôme Royer**

Mechanical Engineer  
Paris, FR

**Gary Rozak**

B. Sci. Mechanical Eng.  
Calgary, AB, CA

**Damien Rozand**

Roquebrune Cap Martin,  
FR

**Sven Ruin**

M. Sci. Vehicle Eng./  
Applied Mechanics  
Royal Inst. of Tech., Stockholm  
Köping, SE

**Demetrio Ruivo**

Bucuresti, RO

**Odette Rundle**

B. Eng. in Metallurgy  
Univ. of Pretoria, ZA  
London, UK

**Marc Salesse-Lavergne**

Engineer  
Marseille, FR

**Jose Sancho**

Bach. of Architecture,  
Univ. of Chile, Santiago  
Montreal, QC, CA

**Enzo Saponara**

Structural Engineer  
Civil University of Florence  
Roma, IT

**Angelo Saracini**

Architect  
Facolta' Architettura  
Roma Sapienza  
Athens, GR

**Mike Satten**

P.E.  
B. Sci. Engineering,  
Lakehead Univ., Ontario,  
Thunder Bay, ON, CA

**Ovidio Sbrissa**

Architect  
B. Architecture  
Ottawa, ON, CA

**Mario Scarpone**

P. Engineering  
Bach. of Engineering  
Waterloo, ON, CA

**Dieter Schaub**

Dipl. Eng. (Engineer)  
Dipl. Eng. (FH)  
Burscheid, DE

**Ralf Scheffer**

Dipl. Eng. Architekt  
B. Arch., Trier Germany  
Luzern, CH

**Hans-Joachim Scheimer**

Dipl. Eng., Hochbau Univ.  
Berlin, DE

**Christian Schimert**

Dipl. Engineer of Arch.  
Masters of Science  
West Vancouver, BC, CA

**Leslie Schlag**

Erfurt, DE

**Bernd Schmidt**

Civil Engineer  
Dipl. Engineering  
Greifswald, MV, DE

**Thilo Schmidt**

Mechanical Engineer  
Master of Engineer  
Recife, PE, BR

**Christian Schoenthaler**

Dipl. Eng. Architect  
Dipl. Eng. (FH), Arch., PBSA  
Zuerich, CH

**Richard Schooling**

Bad Rodach, DE

**Steven Schultz**

B.A. Sci., Civil Eng.  
U of Waterloo  
Kitchener, KS, CA

**David Scott**

AMICE, C. Eng.,  
MI Struct. Eng.  
B. Engineering  
Perth, GB

**Scott Seedell**

B. Sci. (Hons) IEng. MIET  
B. Sci. (Hons), Eng., Plymouth UK  
Plymouth, UK

**Francisco Seixas**

Pereira  
São Paulo, BR

**Syed Shah**

Architect  
B. Arch NWFP  
UET Peshawar  
Mardan, PK

**Allan Sharp**

B. Sci., M. Sci., C. Eng.  
Dundee C of T, Mech. Eng.  
Aberdeen, Scotland, UK

**Philip Shields**

B. A. Architecture  
Manchester, GB

**Werner Simbeck**

Bach. of Mech. Eng.  
Victoria, BC, CA

**Antonio Simões de****Abreu**

Engineer  
Lisboa, PT

**Ajay Singh**

Software Developer  
Bachelor of Engineering  
Bangalore, IN

**Patrik Skoch**

Civil Engineer  
Prague, CZ

**Norm Slater**

Sooke, BC, CA

**Hendricus Johannes****Smit**

Engineering Consultant  
B. Sci., Chem. Engineering  
HHS & HR&O  
Utrecht, NL

**Lee Snethun**

B. Sci. Petroleum Eng.  
Montana Tech  
Calgary, AB, CA

**Gerhard Snyman**

B. Eng., Mechanical  
Sandton, ZA

**Erik Soderlund**

Chief Engineer  
BS Marine Engineering  
Hang Dong, Chiang Mai, Thailand

**Kathryn Sole**

Johannesburg, ZA

**Zim Solo**

Brisbane, AU

**Monica Sortland**

B. Sci. Engineering  
Sogn og Fjordane Univ.  
College, Norway  
Floroe, NO

**Dario Sosa**

Engineer  
Ph. D., Univ. of  
Las Palmas de G.C.  
Las Palmas De G.C., ES

**Ibrahim Soudy**

Ph. D., P.E., S.E.  
Professional Engineer  
B.S. M.S. Ph.D.  
Univ. of Alberta Canada  
Seattle, WA, US

**Vichith So**

Montreal, QC, CA

**Matt Spruell**

Design Engineer  
B. Ind. Design  
Univ. of New S. Wales  
Sydney, AU

**Nadine St-Laurent**

Engineering Consultant  
B.S. Civil Engineering  
Laval Univ. at Québec  
Quebec, QC, CA

**Johan Stage**

B. Eng., Civil Eng.  
Univ. of S. Denmark  
Manitsoq, GL

**Andreas Stanglmeir**

Minttraching, DE

**Matthew Starkey**

M. Engineering  
Wolverhampton, GB

**Thomas Stjernkvist**

Gothenburg, SE

**Greg Strebel**

Quesnel, BC, CA

**Azman Sufat**

B.S. Electrical Eng.  
Univ. of New Haven  
Shah Alam, MY

**Franz Suppanz**

Mechanical Engineer  
Dipl. Ing., Tu Graz, Austria  
Graz, AU

**Willi Syben**

Engineer  
Dipl. Engineering  
Erkelenz, DE

**Lorillou Sylvain**

M. Sci. Engineering  
TP HCM, VN

**Karim Tabbara**

Architect  
DPLG  
Marzens, FR

**Robert Tamaki**

M.A. Sci., P.Eng., Civil Eng.  
B.A. Sci., M.A. Sci.  
Vancouver, BC, CA

**James Tam**

P. Engineering  
M.A. Sci. Bio-Resource  
UBC, Canada  
Hong Kong, HK

**John Taylor**

Engineer  
B. Sci., M.E.  
University of Manitoba  
Boquete, PA



**Non-U.S. Architects and Engineers and A/E Professionals**

**Scott Taylor**  
Oakville, ON, CA

**Vincent Tempelman**

P.E.  
B.S. Civil Eng.  
UMass Amherst  
Constanta, RO

**Michel Tenart**

Eng. Risk Mngt. Co.  
Engineer  
Pau, FR

**Mirvana Teneva-Harper**

Architect  
Sofia, BG

**Damon Thomas**

Central Hawkes Bay, NZ

**Lucky F. Thomas**

Copenhagen, DK

**Daniel Tinnelly**

Vancouver, BC, CA

**Johan Tivander**

Research Engineer  
M.Sci. Engineering  
Gothenburg, SE

**Angelo Tofalo**

Engineer  
Civil Engineer  
Salerno, IT

**Jasper Tomlinson**

MA(Oxon) C. Env. MCIWEM  
Environ. and Water Res.  
London, London, UK

**Andreas Torggler**

Bach. of Civil Engineering  
Univ. Innsbruck, Austria  
Klausen (BZ), IT

**Marc Torra Ferrer**

Architect  
ETSAB - Barcelona  
Olot, Catalunya, ES

**Juan Carlos Torrico**

Santiago, CL

**Sam Tripp**

Yateley, GB

**Luis Trivellini**

Civil Engineer  
Bahia Blanca, AR

**Thomas Troy**

P.E.  
B. Eng. Electrical Power  
McGill University  
Maitland, ON, CA

**Michael Ubrig**

Architect  
Dipl. Ing. FH  
Zurich, CH

**Borja Ugarte**

San Sebastian, ES

**Ulf Ullby**

M. Sci. Engineering  
Tech. Univ. of Denmark  
Copenhagen, DK

**Juergen Unser**

Dipl. Eng. Architect  
FH Wuerzburg Germany  
Schweinfurt, DE

**Thomas Utschig**

Frankfurt am Main, DE

**Kathrin Utz**

Rötenbach, DE

**Jan Utzon**

Architect  
Helleback, DK

**Razvan Vacaru**

Pesaro, IT

**Simon Vaillancourt**

Engineer  
B. Sci. Eng., Mechanical  
Montreal, QC, CA

**Wico Valk**

Architect  
Ir., Architecture, TU Delft  
Delft, NL

**Jennifer Van Der**

**Merwe**

B. Eng. Industrial  
Univ of Stellenbosch  
Wellington, NZ

**Kris Van Der Merwe**

B. Eng. Industrial  
B. Sci. Hons Mathematics  
Wellington, NZ

**Aike van der Nat**

Ph.D. Candidate, Env. Eng.  
M Sci. Envi. Sci. U Nijmegen  
Nijmegen, NL

**Hans van Os**

Ferragudo, PT

**Joop van Poll**

Roosendaal, NL

**Kim Arne Vang**

B.S.E.E. Elec. Eng.  
Aarhus Teknikum  
Aarhus, Jylland, DK

**Edison Vasconcellos**

Architect  
Porto Alegre, BR

**Ricardo Velozo**

BA Eng., PUC-PR, Brazil  
Curitiba, Paraná, BR

**Daniel Verbeck**

Architect  
Brussels, BE

**Coen Vermeeren**

Engineer  
Dr. Delft Univ. of Tech.  
Delft, NL

**Johnny Verplancken**

Engineer  
B. Sci. Engineering  
Edinburgh University  
Saint Laurent, FR

**Roberto Vescio**

Rome, IT

**Sopterean Vicentiu**

Architect  
Paris, FR

**Philippe Vidori**

Engineering Consultant  
M.A. Sci. - Machine Design  
Montréal, QC, CA

**Carlos Viles**

Electrical Engineer  
Barcelona, ES

**Edgardo Villalobos**

**Jaen**  
Panama, PA

**Bernard Villien**

Engineer  
Mechanics, INSA Lyon  
Chavanoz, FR

**Fernando Vivero**

Bogotá, CO

**Boryan Vladimirov**

Elec., Opto-electronical  
and Laser Technics, Master  
Gorna Oryahovica, BG

**Gabrielle Von**

**Bernstorff**

Architecte SIA  
M. Arch. Princeton Univ.  
B.A. Columbia Univ.  
Vevey, CH

**Gerwin Voorsluijs**

M.Sci. Engineering  
Aerospace Eng., TU Delft  
Delft, NL

**Martin Voss-Jensen**

Architect M.A.A.  
Royal Danish School of Art  
Architecture  
Ringsted, Denmark

**Darko Vujnovic**

Engineer  
B.S. Electrical Engineer  
Zagreb, HR

**Marc Walgenwitz**

Engineering Staff  
Geneva, CH

**Richard Warden**

B. Arch  
B.A. Cooper Union  
Simferopol, UA

**Gery Warner**

P. Engineering  
B. Sci. Eng. Mechanical  
Surrey, BC, CA

**John Watt**

Structural Engineer  
C. Eng., M.I.C.E., M.I. Struct  
B. Sci. Civil Engineering  
Edinburgh, GB

**Markus Weber Sutter**

Dr. Sci. Techn.  
Schaöbhausen, CH

**Donald Weekes**

P.Eng.  
B.A.Sc. Engineering  
Univ. of Waterloo, ON  
Hamilton, ON, CA

**Hagen Wegner**

M.S. Electrical Eng.  
University of Stuttgart  
Minane Bridge, IE

**Eleanor White**

P.Eng., retired  
B.Sc. Mechanical Engineering,  
UCONN  
Elliot Lake, ON, CA

**Siegfried Wiesmüller**

Electrical Engineer  
Heroldsbach, DE

**Jean-Sébastien**

**Williams**

BFA, Tech. Deg., Mech. Eng.  
Montréal, QC, CA

**George Willis**

Master in Engineering  
Oxford Brookes Univ.  
Oxford, GB



## **Non-U.S. Architects and Engineers and A/E Professionals**

### **Scott Wolfe**

Mech. Engineer  
B.Eng. Lakehead Univ.  
Port Colborne, ON, CA

### **Arnold Wolthers**

Architect  
Degree RMIT Australia  
Southport, AU

### **Peter Wright**

Principal  
Fellowship Diploma of Arch.  
Melbourne, AU

### **Ray Wright**

B. Sci., Software Eng.  
Peterborough, UK

### **Serif Yaltirik**

B.S. Civil Engineering  
Istanbul, TR

### **Sajid Yaqub**

P.E.  
B. Sci. Civil Engineering  
National Univ. of Sciences  
& Technology Pakistan; MBA  
Project Management  
Islamabad, PK

### **Mohamed Yehiya**

Int'l. Assoc. AIA, M.Sci., Arch.  
Architectural Consultant  
Colombo, LK

### **Mathieu Yelle**

Engineer  
Mechanical Engineering  
Ottawa, ON, CA

### **Yvonne Yip**

B. Sci., B Architecture  
M. Project Management  
Wellington, NZ

### **Robert Young**

P.E.  
B. Eng., Mechanical  
McGill University, CA

### **Matthias Zahn**

Kiel, DE

### **Jorge Zambrana**

**Jiménez**  
Civil, Structural Engineer  
UMSA La Paz, BO

To view more detailed biographies, credentials, and the 9/11 statements of all the AE911Truth petition signatories, click the SIGN PETITION button at [AE911Truth.org](http://AE911Truth.org).

## 9/11 Whistleblower Rowley on Mueller's History of "Cover-up"

COLEEN ROWLEY, May 18, 2017



Rowley, a former FBI special agent and division counsel whose May 2002 memo to then-FBI Director Robert Mueller exposed some of the FBI's pre-9/11 failures, was named one of *TIME* magazine's "Persons of the Year" in 2002. She just appeared on The Real News report "Special Counsel Investigating Trump Campaign Has Deep Ties to the Deep State," about Mueller being appointed to investigate the Trump campaign's ties to Russia.

While Mueller has been widely described as being of impeccable character by much of official Washington, Rowley said today: "The truth is that Robert Mueller (and James Comey as deputy attorney general — see my New York Times op-ed on day of Comey's confirmation hearing) presided over a cover-up ..."

In her interview, Rowley noted: "The FBI and all the other officials claimed that there were no clues, that they had no warning [about 9/11] etc., and that was not the case. There had been all kinds of memos and intelligence coming in. I actually had a chance to meet Director Mueller personally the night before I testified to the Senate Judiciary Committee ... [he was] trying to get us on his side, on the FBI side, so that we wouldn't say anything terribly embarrassing. ..."

"When you had the lead-up to the Iraq War ... Mueller and, of course, the CIA and all the other directors, saluted smartly and went along with what Bush wanted, which was to gin up the intelligence to make a pretext for the Iraq War. For instance, in the case of the FBI, they actually had a receipt, and other documentary proof, that one of the hijackers, Mohamed Atta, had not been in Prague, as Dick Cheney was alleging. And yet those directors more or less kept quiet. That included ... CIA, FBI, Mueller, and it included also the deputy attorney general at the time, James Comey."

Rowley also noted that Mueller presided over "the 'post 9-11 round-up' of innocent immigrants, the anthrax investigation fiasco, as well as going along with a form of martial law (made possible via secret OLC [Office of Legal Counsel] memos written by John Yoo etc. predicated upon Yoo's theories of absolute 'imperial presidency' or 'war presidency' powers that the Bush administration was making [Attorney General John] Ashcroft sign off on)."

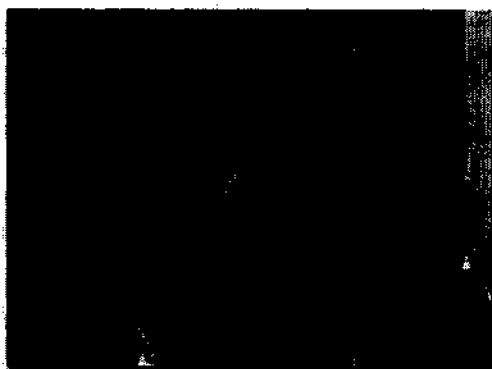
"While not the worst of the bunch, neither Comey nor Mueller deserve their Jimmy Stewart 'G-man' reputations for absolute integrity but have merely been, along the lines of George 'Slam Dunk' Tenet, capable and flexible politicized sycophants to power, that enmeshed them in numerous wrongful abuses of power along with presiding over plain official incompetence. It's sad that political partisanship is so blinding and that so few people remember the actual sordid history."

## Russia-gate's Mythical 'Heroes'

By Coleen Rowley, June 6, 2017

The mainstream U.S. media sells the mythical integrity of fired FBI Director Comey and special Russia-gate prosecutor Mueller, but the truth is they have long histories as pliable political operatives, writes ex-FBI official Coleen Rowley.

Mainstream commentators display amnesia when they describe former FBI Directors Robert Mueller and James Comey as stellar and credible law enforcement figures. Perhaps if they included J. Edgar Hoover, such fulsome praise could be put into proper perspective.



Robert Mueller with President George W. Bush on July 5, 2001, as Bush nominated Mueller to be FBI Director. (White House photo)

Although these Hoover successors, now occupying center stage in the investigation of President Trump, have been hailed for their impeccable character by much of Official Washington, the truth is, as top law enforcement officials of the George W. Bush Administration (Mueller as FBI Director and James Comey as Deputy Attorney General), both presided over post-9/11 cover-ups and secret abuses of the

Constitution, enabled Bush-Cheney fabrications used to launch wrongful wars, and exhibited plain vanilla incompetence.

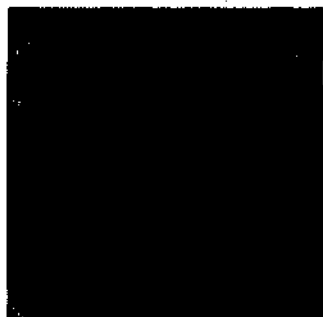
*TIME Magazine* would probably have not called my own disclosures a "bombshell memo" to the Joint Intelligence Committee Inquiry in May 2002 if it had not been for Mueller's having so misled everyone after 9/11. Although he bore no personal responsibility for intelligence failures before the attack, since he only became FBI Director a week before, Mueller denied or downplayed the significance of warnings that had poured in yet were all ignored or mishandled during the Spring and Summer of 2001.

Bush Administration officials had circled the wagons and refused to publicly own up to what the 9/11 Commission eventually concluded, "that the system had been blinking red." Failures to read, share or act upon important intelligence, which a FBI agent witness termed "criminal negligence" in later trial testimony, were therefore not fixed in a timely manner. (Some failures were never fixed at all.)

Worse, Bush and Cheney used that post 9/11 period of obfuscation to "roll out" their misbegotten "war on terror," which only served to exponentially increase worldwide terrorism.

### Unfulfilled Promise

I wanted to believe Director Mueller when he expressed some regret in our personal meeting the night before we both testified to the Senate Judiciary Committee. He told me he was seeking improvements and that I should not hesitate to contact him if I ever witnessed a similar situation to what was behind the FBI's pre 9/11 failures.



Some of the original detainees jailed at the Guantanamo Bay prison, as put on display by the U.S. military.

A few months later, when it appeared he was acceding to Bush-Cheney's ginning up intelligence to launch the unjustified, counterproductive and illegal war on Iraq, I took Mueller up on his offer, emailing him my concerns in late February 2003. Mueller knew, for instance, that Vice President Dick Cheney's claims connecting 9/11 to Iraq were bogus yet he remained quiet. He also never responded to my email.

Beyond ignoring politicized intelligence, Mueller bent to other political pressures. In the aftermath of the 9/11 attacks, Mueller directed the "post 9/11 round-up" of about 1,000 immigrants who mostly happened to be in the wrong place (the New York City area) at the wrong time. FBI Headquarters encouraged more and more detentions for what seemed to be essentially P.R. purposes. Field offices were required to report daily the number of detentions in order to supply grist for FBI press releases about FBI "progress" in fighting terrorism. Consequently, some of the detainees were brutalized and jailed for up to a year despite the fact that none turned out to be terrorists.

### **A History of Failure**

Long before he became FBI Director, serious questions existed about Mueller's role as Acting U.S. Attorney in Boston in effectively enabling decades of corruption and covering up of the FBI's illicit deals with mobster Whitey Bulger and other "top echelon" informants who committed numerous murders and crimes. When the truth was finally uncovered through intrepid investigative reporting and persistent, honest judges, U.S. taxpayers footed a \$100 million court award to the four men framed for murders committed by (the FBI-operated) Bulger gang.

Current media applause omits the fact that former FBI Director Mueller was the top official in charge of the Anthrax terror fiasco investigation into those 2001 murders, which targeted an innocent man (Steven Hatfill) whose lawsuit eventually forced the FBI to pay \$5 million in compensation. Mueller's FBI was also severely criticized by Department of Justice Inspector Generals finding the FBI overstepped the law improperly serving hundreds of thousands of "national security letters" to obtain private (and irrelevant) metadata on citizens, and for infiltrating nonviolent anti-war groups under the guise of investigating "terrorism."

For his part, Deputy Attorney General James Comey, too, went along with the abuses of Bush and Cheney after 9/11 and signed off on a number of highly illegal programs including warrantless surveillance of Americans and torture of captives. Comey also defended the Bush Administration's three-year-long detention of an American citizen without charges or right to counsel.

Up to the March 2004 night in Attorney General John Ashcroft's hospital room, both Comey and Mueller were complicit with implementing a form of martial law, perpetrated via secret Office of Legal Counsel memos mainly written by John Yoo and predicated upon Yoo's singular theories of absolute "imperial" or "war presidency" powers, and requiring Ashcroft every 90 days to renew certification of a "state of emergency."

## The Comey/Mueller Myth

What's not well understood is that Comey's and Mueller's joint intervention to stop Bush's men from forcing the sick Attorney General to sign the certification that night was a short-lived moment. A few days later, they all simply went back to the drawing board to draft new legal loopholes to continue the same (unconstitutional) surveillance of Americans.



Former FBI Director James Comey

The mythology of this episode, repeated endlessly throughout the press, is that Comey and Mueller did something significant and lasting in that hospital room. They didn't. Only the legal rationale for their unconstitutional actions was tweaked.

Mueller was even okay with the CIA conducting torture programs after his own agents warned against participation. Agents were simply instructed not to document such torture, and any "war crimes files" were made to disappear. Not only did "collect it all" surveillance and torture programs continue, but Mueller's (and then Comey's) FBI later worked to prosecute NSA and CIA whistleblowers who revealed these illegalities.

Neither Comey nor Mueller — who are reported to be "joined at the hip" — deserve their current lionization among politicians and mainstream media. Instead of Jimmy Stewart-like "G-men" with reputations for principled integrity, the two close confidants and collaborators merely proved themselves, along with former CIA Director George "Slam Dunk" Tenet, reliably politicized sycophants, enmeshing themselves in a series of wrongful abuses of power along with official incompetence.

It seems clear that based on his history and close "partnership" with Comey, called "one of the closest working relationships the top ranks of the Justice Department have ever seen," Mueller was chosen as Special Counsel not because he has integrity but because he will do what the powerful want him to do.

Mueller didn't speak the truth about a war he knew to be unjustified. He didn't speak out against torture. He didn't speak out against unconstitutional surveillance. And he didn't tell the truth about 9/11. He is just "their man."

Coleen Rowley, a retired FBI special agent and division legal counsel whose May 2002 memo to then-FBI Director Robert Mueller exposed some of the FBI's pre-9/11 failures, was named one of TIME magazine's "Persons of the Year" in 2002. Her 2003 letter to Robert Mueller in opposition to launching the Iraq War is archived in full text on the NYT and her 2013 op-ed entitled "Questions for the FBI Nominee" was published on the day of James Comey's confirmation hearing. This piece will also be cross-posted on Rowley's Huffington Post page.)

### Relevant links:

<http://content.time.com/time/covers/0,16641,20020603,00.html>

[http://govinfo.library.unt.edu/911/report/911Report\\_Ch8.pdf](http://govinfo.library.unt.edu/911/report/911Report_Ch8.pdf)

<http://www.nytimes.com/2006/03/21/us/nationalspecial3/fbi-agent-testifies-superiors-didnt-pursue-moussaoui.html>



<http://www.truth-out.org/archive/component/k2/item/68973:the-iraq-effect-war-has-increased-terrorism-sevenfold-worldwide>

<http://www.dailymail.co.uk/news/article-3322308/Number-people-killed-terrorists-worldwide-soars-80-just-year.html>

<http://www.nytimes.com/2003/03/05/politics/full-text-of-fbi-agents-letter-to-director-mueller.html>

<https://oig.justice.gov/special/0306/full.pdf>

<https://www.nytimes.com/2015/06/18/us/immigrants-suit-over-detention-after-9-11-is-revived.html>

<https://www.bostonglobe.com/metro/1970/01/19/one-lingering-question-for-fbi-director-robert-mueller/613uW0MR7czurRn7M4BG2J/story.html>

<http://www.oregister.com/2017/05/21/comey-mueller-bungled-big-anthrax-case-together/>

<https://www.mintpressnews.com/anthrax-russiagate-muellers-special-counsel-appointment-raise-concern/228317/>

[http://www.pbs.org/newshour/bb/government\\_programs-jan-june07-patriotact\\_03-09/](http://www.pbs.org/newshour/bb/government_programs-jan-june07-patriotact_03-09/)

<http://abcnews.go.com/TheLaw/DOJ/story?id=4444329>

<https://www.aclu.org/news/fbi-counterterrorism-unit-spies-peaceful-faith-based-protest-group>

<http://www.nytimes.com/2013/07/09/opinion/questions-for-the-fbi-nominee.html>

<https://theintercept.com/2016/02/25/fbi-director-james-comey-who-signed-off-on-waterboarding-is-now-losing-sleep-over-an-iphone/>

<http://www.newsweek.com/ali-soufan-breaks-his-silence-77243>

<http://www.foxnews.com/opinion/2017/05/19/gregg-jarrett-why-robert-mueller-should-resign-as-special-counsel.html>

[https://www.washingtonpost.com/news/the-fix/wp/2017/05/10/want-a-special-prosecutor-to-replace-james-comey-history-might-change-your-mind/?utm\\_term=.4091053795m](https://www.washingtonpost.com/news/the-fix/wp/2017/05/10/want-a-special-prosecutor-to-replace-james-comey-history-might-change-your-mind/?utm_term=.4091053795m)

[https://www.washingtonpost.com/news/morning-mix/wp/2017/03/03/the-flawed-record-of-special-prosecutors-who-create-as-much-controversy-as-they-resolve/?utm\\_term=.29989d7a3635](https://www.washingtonpost.com/news/morning-mix/wp/2017/03/03/the-flawed-record-of-special-prosecutors-who-create-as-much-controversy-as-they-resolve/?utm_term=.29989d7a3635)

## FBI, Mueller Oversaw Post-9/11 Abuses

By Jonathan Marshall, June 21, 2017

**Exclusive:** The U.S. mainstream media gushes over Russia-gate special prosecutor Robert Mueller as an upright man of the Establishment, ignoring how he oversaw abuses of innocent Arabs after 9/11, reports Jonathan Marshall.

Robert Mueller III, the former FBI director who now heads the wide-ranging investigation into alleged misdeeds by President Trump and his associates, just dodged a major legal bullet himself. On Monday, the U.S. Supreme Court gave him and other former senior Bush administration officials legal immunity for the vicious abuses committed against more than 700 foreigners who were rounded up with little or no cause after the 9/11 attacks.



Robert Mueller with President George W. Bush on July 5, 2001, as Bush nominated Mueller to be FBI Director. (White House photo)

The court ruled 4-2, nearly 16 years after the fact, that “national security” trumps civil liberties and that however unfounded the arrests, or intolerable their treatment, the detainees had no right to sue senior federal officials for damages.

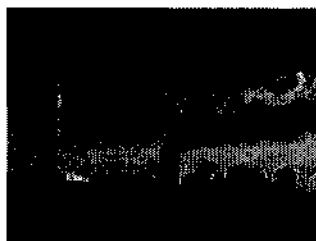
Punting to Congress, a branch of government rarely known for its defense of individual rights, the court declared, “The proper balance in situations like this, between deterring constitutional violations and freeing high officials to make the lawful decisions necessary to protect the Nation in times of great peril, is one for the Congress to undertake, not the Judiciary.”

Although the climate of fear that followed 9/11 has eased a bit, the decision is highly relevant in the Trump era because the abused victims were all immigrants who had overstayed their visas. If the FBI had any question about the arrestees, it designated them “of interest” and ordered them held until cleared — in other words, guilty until proven innocent.

Dozens of the hapless victims were held at the Administrative Maximum Special Housing Unit in Brooklyn’s Metropolitan Detention Center (MDC), which was the subject of two scathing reports by the Bush Justice Department’s own Inspector General in 2003. Besides documenting a wide range of abuses, the reports concluded that staff members brazenly lied about the rough treatment they meted out.

### Appalling Abuses

News accounts of the Supreme Court decision made only brief reference to that treatment. Yet the appalling story can be glimpsed from this summary of facts provided in 2013 by U.S. District Judge John Gleeson:



The World Trade Center’s Twin Towers burning on 9/11. (Photo credit: National Park Service)

"The harsh confinement policy was expressly directed at Arab and Muslim noncitizens who had violated immigration laws . . . In other words, it was discriminatory on its face. . .

"They were confined in tiny cells for over 23 hours a day, provided with meager and barely edible food, and prohibited from moving around the unit . . . (or) keeping any property, including personal hygiene items like toilet paper and soap, in their cells. Whenever they left their cells, they were handcuffed and shackled. . . (D)etainees . . . were often physically abused along the way, and were sometimes left for hours in the cold recreation cell, over their protests, as a form of punishment. . .

"Detainees also were denied sleep. Bright lights were kept on . . . for 24 hours a day . . . and staff at the MDC made a practice of banging on the MDC Detainees' cell doors and engaging in other conduct designed to keep them from sleeping. They also conducted inmate 'counts' at midnight, 3:00 a.m., and 5:00 a.m. . . . One of the officers walked by about every 15 minutes throughout the night, kicked the doors to wake up the detainees, and yelled things such as, 'Motherfuckers,' 'Assholes,' and 'Welcome to America.'

"The MDC Detainees also were subjected to frequent physical and verbal abuse . . . The physical abuse included slamming the MDC Detainees into walls; bending or twisting their arms, hands, wrists, and fingers; lifting them off the ground by their arms; pulling on their arms and handcuffs; stepping on their leg restraints; restraining them with handcuffs and/or shackles even while in their cells; and handling them in other rough and inappropriate ways. The use of such force was unnecessary because the MDC Detainees were always fully compliant with orders . . . The verbal abuse included referring to the MDC Detainees as 'terrorists' and other offensive names, threatening them with violence, cursing at them, (and) insulting their religion . . .

"(Detainees) . . . were subjected to unreasonable and punitive strip-searches. . . Female officers were often present during the strip-searches; the strip-searches were regularly videotaped in their entirety . . . and MDC officers routinely laughed and made inappropriate sexual comments during the strip-searches.

"Officers at the MDC . . . also interfered with the Detainees' ability to practice and observe their Muslim faith. . . In addition, most of the MDC Detainees were held incommunicado during the first weeks of their detention. MDC staff repeatedly turned away everyone, including lawyers and relatives, who came to the MDC looking for the MDC Detainees, and thus the MDC Detainees had neither legal nor social visits during this period."

### **An Abu Ghraib in Brooklyn**

Though not at the level of brutality of water boarding and some of the beatings associated with secret CIA detention centers, these MDC abuses had some similarities to the humiliation and mistreatment of prisoners at Abu Ghraib in Iraq — and the abuses were taking place right in the heart of New York City. Plus, unlike some of the CIA's torture victims, these detainees had nothing to do with terrorist plots; some were never even questioned by the FBI after their arrest.

American military police pose with naked detainees at Abu Ghraib prison in Iraq.

Yet senior FBI and Justice Department officials were complicit in the abuse. The 2<sup>nd</sup> Circuit Court of Appeals, in a 2015 ruling that the lawsuit could proceed, cited evidence that two of the defendants, Attorney General John Ashcroft and FBI Director Mueller, “met regularly with a small group of government officials in Washington, D.C., and mapped out ways to exert maximum pressure on the individuals arrested in connection with the terrorism investigation.”

They “discussed and decided upon a strategy to restrict the 9/11 detainees’ ability to contact the outside world and delay their immigration hearings. The group also decided to spread the word among law enforcement personnel that the 9/11 detainees were suspected terrorists[] . . . and that they needed to be encouraged in any way possible to cooperate.” And it was the FBI that recommended housing the detainees in the maximum security facility where their rights were sure to be abused.

Such official misconduct and brutality constitutes a stain on this nation’s honor. Justice Anthony Kennedy, writing for the majority, said “Nothing in this opinion should be read to condone the treatment to which the (plaintiffs) contend they were subjected.”

### **A Terrible Precedent**

But the court’s decision to protect high-level federal officials who made that treatment possible sets a terrible precedent. As the American Civil Liberties Union warned, it “would effectively immunize tens of thousands of federal officers . . . from damages, no matter how egregious the officers’ conduct. Indeed, [it] would effectively immunize federal officers from damages liability even for torture, so long as the torture arises in a context involving national security or noncitizens.”



### **U.S. Supreme Court**

Citing such egregious precedents as the Alien and Sedition Acts, the wholesale suppression of civil liberties during World War I, and the internment of Japanese-American citizens during World War II, a dissenting Justice Stephen Breyer insisted that the Court had an obligation to defend “fundamental constitutional rights.”

“History tells us of far too many instances where the Executive or Legislative Branch took actions during time of war that, on later examination, turned out unnecessarily and unreasonably to have deprived American citizens of basic constitutional rights,” he wrote. With the latest court ruling, that dark history is sure to be repeated.

## Good Agent, Bad Agent: Robert Mueller and 9-11

by James Ridgeway, June 21, 2017

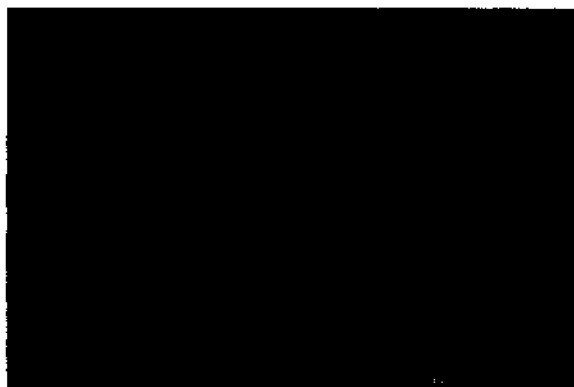


Photo by Medill DC

Robert Mueller, the former FBI director named special counsel for the investigation into Russian interference in the presidential election, is depicted as an iconic G-man: serious, patrician, and totally incorruptible. But in reality, it's a little different. As with FBI Agent Dale Cooper in the latest iteration of "Twin Peaks," there is a Good Mueller and a Bad Mueller. We've heard a lot about the good-guy Mueller, but nothing much about his bad side. And there is a bad side—though it's not the

one that Trump supporters would have us think.

The President's loyal minions, following a familiar pattern, have been busy building an advance smear campaign against Mueller, claiming that he has it out for the poor, innocent Donald and is determined to bring him down due to pre-existing biases. In fact, if Mueller is indeed biased, it is toward preserving the institutions of government, including the White House, as well as his beloved FBI, even at the expense of making public the full truth. At least, that's how he behaved the last time he was involved in a major national crisis—namely, the attacks of September 11, 2001.

Mueller, a Republican, was appointed by George W. Bush to head the FBI, and took the helm on September 4, 2001, one week before the terrorist attacks. So he can hardly be blamed for the failure of the FBI (along with the CIA and other U.S. and allied intelligence agencies) to detect and respond to numerous warning signs that the attacks were coming, including the arrival of many of the future perpetrators to the United States.

The same cannot be said for Mueller's role in the subsequent coverup of FBI and White House bungling during the run up to 9/11. Six months after the attacks, Congress convened the Joint Senate-House Inquiry into Intelligence Activities Before and After the Terrorist Attacks of September 11, 2001. Headed by Florida Democratic Senator Bob Graham, the inquiry was more thorough and penetrating than the later official 9/11 Commission would ever be.

Among other things, the Joint Inquiry learned of the involvement of a paid FBI informant with two of the future hijackers: Khalid Al Mindhar, who had fought for Al Qaeda in Bosnia and Chechnya and trained in Bin Laden's Afghan training camps, and Nawaf Al Hazmi, who had battle experience in Bosnia, Chechnya, and Afghanistan. According to the Joint Inquiry report, the NSA and CIA at the time had available enough information to connect the two men with Osama Bin Laden.

The CIA, however, failed to share its information with the FBI, and did not place the two men on any watch lists. So Al Mindhar and Al Hamzi flew to Los Angeles in early 2000 (shortly after attending an Al Qaeda summit in Malaysia), and were routinely admitted into the United States on tourist visas. They traveled to San Diego, where they got Social Security cards, credits cards, and driver licenses, and bought a car, as well as a season pass to Sea World. They soon began taking flight lessons. They also had contact with a radical imam and a local Saudi national who were both being watched by the

FBI. And they actually rented a room in the home of Abdusattar Shaikh, who was a retired English professor, a leader of the local mosque—and a paid informant for the FBI's San Diego office, charged with monitoring the city's Saudi community.

As the Joint Inquiry report would reveal, by mid-2001 U.S. intelligence agencies had ample evidence of possible terrorist plans to use hijacked airplanes as bombs, but had done little to act on this threat. In July 2001, the CIA had passed on the names of Al Mindhar and Al Hamzi to the FBI office in New York—though not the office in San Diego. Shaikh had apparently done nothing to warn the Bureau about any possible danger from his tenants. And no one had warned the airlines or the FAA not to let these men get on planes. So on the morning of September 11, Al Mindhar and Al Hamzi boarded American Airlines Flight 77 at Dulles Airport and helped crash it into the Pentagon.

While the San Diego scenario was the most extreme, there was other evidence of the FBI allowing future 9/11 perpetrators to slip through its fingers. By the time it issued its report, the Joint Inquiry had found that five of the hijackers “may have had contact with a total of 14 people who had come to the FBI's attention during counterterrorism or counterintelligence investigations prior to September 11, 2001. Four of those 14 were the focus of FBI investigations during the time that the hijackers were in the United States.... Despite their proximity to FBI targets and at least one FBI source, the future hijackers successfully eluded FBI attention.”

Yet in testimony before the Joint Inquiry on June 18, 2002, FBI director Mueller said, that “while here [in America] the hijackers effectively operated without suspicion, triggering nothing that would have alerted law enforcement and doing nothing that exposed them to domestic coverage.” There is no way of knowing whether Mueller was lying or just ignorant.

Subsequently, Senator Graham set out to subpoena the informant to testify before the Joint Inquiry. The FBI refused to cooperate, blocked the Inquiry's efforts to interview the informant, and it appears to have arranged for a private attorney to represent him. Despite insisting that the informant had done nothing wrong, the Bureau at one point suggested the Inquiry give him immunity, which Graham refused to do.

As Graham would later describe in his book *Intelligence Matters*, the FBI also “insisted that we could not, even in the most sanitized manner, tell the American people that an FBI informant had a relationship with two of the hijackers.” The Bureau opposed public hearings on the subject and deleted any references to the situation from drafts of the Joint Inquiry's unclassified report. It took more than a year for the Bureau allow a version of the story to appear in the public report, and even then it was heavily redacted.

Only years later, Graham writes, did information provided by FBI staffers confirm what he had long suspected: that the FBI carried out its resistance and obfuscation on direct instructions from the White House. Whether Bush and Company were eager to downplay any further connections to their friends the Saudis, or just protect itself from the fallout of such an obvious intelligence failure, will likely never be known.

So much for Robert Mueller remaining above the political fray. And so much for the Bureau's supposed independence and incorruptibility. The latter, clearly, has always been a myth. From its earliest days it was a highly politicized—and relentlessly reactionary—agency, made all the more so by



the colossal power of J. Edgar Hoover. Its mission has always been at heart a deeply reactionary one, dedicated to protecting the republic from whatever it perceived as a threat, including all forms of dissent and unrest—from communists to civil rights leaders.

What does all this bode for the current moment? Normally, it would seem that Mueller's instinct would be to try to preserve some semblance of the current order, up to and including the presidency. But with Trump now locked in a knock down drag out struggle with the intelligence agencies—what some people like to call “the Deep State”—Mueller and his intelligence cronies may find it in the best interests of the status quo—and, of course, themselves—to throw the President under the bus and one way Mueller could do so is by cutting some sort of deal with Congress, specifically with the legislature's true power broker, Mitch McConnell, to turn on Trump and run him out of office.

As Agent Cooper said of his own famous investigation into the death of Laura Palmer, “I have no idea where this will lead us, but I have a definite feeling it will be a place both wonderful and strange.”